

**IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF TEXAS  
WACO DIVISION**

**Halliburton Energy Services, Inc.,  
Halliburton US Technologies, Inc.,  
Halliburton Group Technologies, Inc.,**

**Plaintiffs,**

**v.**

**U.S. Well Services, LLC,  
ProFrac Holding Corp.,**

**Defendants.**

**Case No. 6:22-CV-00905-ADA**

**Jury Trial Demanded  
Related Case to 6:21-CV-00367-ADA**

**HALLIBURTON'S SECOND AMENDED COMPLAINT FOR PATENT  
INFRINGEMENT**

Plaintiff Halliburton Energy Services, Inc. (“Halliburton”), Halliburton US Technologies, Inc. (“Halliburton Technologies”), and Halliburton Group Technologies, Inc. (“HGTI”) (collectively “Halliburton Plaintiffs”) allege against Defendants U.S. Well Services, LLC (“USWS”) and ProFrac Holding Corp. (“ProFrac”) (collectively “Defendants”) as follows:

**NOTICE OF RELATED CASES**

The Halliburton Plaintiffs respectfully inform the Court that the present case involves the infringement of multiple patents already in suit in the case styled as *U.S. Well Services, LLC. et al. v. Halliburton Co. et al.*, Case No. 6:21-CV-00367-ADA-DTG (the “367 Case”) and the infringement of multiple patents related to the patents in suit in the 367 Case.

Specifically, the following patents asserted in this litigation overlap with the patents asserted in the 367 Case: U.S. Patent No. RE 47,695 (the “’695 Patent”), U.S. Patent No. RE

46,725 (the “’725 Patent”), and U.S. Patent No. 9,435,333 (the “’333 Patent”), (collectively “367 Asserted Patents”).

In this case, Halliburton Plaintiffs assert three of the same patents that were previously filed in the Waco Division and are currently being litigated in 367 Case, albeit on a different set of infringing systems and methods. The remaining four patents<sup>1</sup> are from the same family as the ’695 and ’725 Patents and will implicate overlapping questions of law and fact. The Court in the Waco Division has already construed claims of each of the 367 Asserted Patents. The Court in the Waco Division had also considered several motions, including motions on the pleadings and discovery motions, and resolved disputes between the parties relating to the technology at issue in the 367 Asserted Patents. In addition to the claim construction hearing and multiple discovery hearings, the Court in the Waco Division will be holding a pre-trial conference on March 13, 2023, and resolving additional disputed issues relating to the 367 Asserted Patents.

### **NATURE OF THE ACTION**

1. Halliburton is a global leader in the energy industry and a pioneer in oilfield exploration and well treatment systems. Its pioneering efforts and groundbreaking inventions in the oilfield industry date back to the 1920s. Over the last century, Halliburton has been awarded over 13,000 United States patents for innovations in oil and gas exploration. Formed only within the last 10 years, USWS and ProFrac are relative newcomers to the hydraulic fracturing industry. On November 1, 2022, ProFrac announced that it acquired USWS in a stock-for-stock merger transaction.<sup>2</sup> Defendants are using the Halliburton Plaintiffs’ patented hydraulic fracturing

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<sup>1</sup> U.S. Patent No. RE49,083 (the “’083 Patent”), U.S. Patent No. RE49,140 (the “’140 Patent”), U.S. Patent No. RE49,155 (the “’155 Patent”), U.S. Patent No. RE49,156 (the “’156 Patent”).

<sup>2</sup> See <https://www.prnewswire.com/news-releases/profrac-holding-corp-closes-on-us-well-services-inc-acquisition->

technology without permission and Halliburton brings this action to stop it. This action for patent infringement arises under the patent laws of the United States, 35 U.S.C. § 271 *et seq.* This action involves U.S. Patent No. RE 46,725 (the “’725 Patent”), U.S. Patent No. RE 47,695 (the “’695 Patent”), U.S. Patent No. 9,435,333 (the “’333 Patent”), U.S. Patent No. RE49,083 (the “’083 Patent”), U.S. Patent No. RE49,140 (the “’140 Patent”), U.S. Patent No. RE49,155 (the “’155 Patent”), U.S. Patent No. RE49,156 (the “’156 Patent”), and U.S. Patent No. 7,931,082 (the “’082 Patent”) (collectively the “Patents-in-Suit” or the “Asserted Halliburton Patents”). *See* Ex. A (the ’725 Patent), Ex. B (the ’695 Patent), Ex. C (the ’333 Patent), Ex. D (the ’083 Patent), Ex. E (the ’140 Patent), Ex. F (the ’155 Patent), Ex. G (the ’156 Patent), Ex. H (the ’082 Patent).

### **PARTIES**

2. Halliburton is a corporation duly organized and existing under the laws of the state of Delaware. Its principal place of business is located at 3000 North Sam Houston Parkway East, Houston, Texas 77032.

3. Halliburton Technologies is a corporation duly organized and existing under the laws of the state of Delaware. Its principal place of business is located at 3000 North Sam Houston Parkway East, Houston, Texas 77032.

4. HGTI is a corporation duly organized and existing under the laws of the state of Delaware. Its principal place of business is located at 3000 North Sam Houston Parkway East, Houston, Texas 77032.

5. USWS is a Delaware limited liability company having its principal place of business at 1360 Post Oak Boulevard, Suite 1800, Houston, Texas 77056.

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301664765.html#:~:text=WILLOW%20PARK%2C%20Texas%2C%20Nov.,-for-stock%20merger%20transaction

HALLIBURTON’S SECOND AMENDED COMPLAINT FOR PATENT INFRINGEMENT

6. Formed in 2012, USWS claims to be “one of the pioneer companies in developing the electric pressure pumping industry” and boasts that its “Clean Fleet® technology is supported by an intellectual property portfolio, consisting of 62 granted patents and an additional 201 pending patents.” *See* U.S. Well Services Annual Report, Form 10-K, dated March 30, 2022.

7. USWS’s patent portfolio, however, was acquired based on a series of omissions and material misrepresentations before the USPTO by some of its founding members dating back to USWS’s first patent filings before the USPTO in 2012. *See U.S. Well Services et al. v. Halliburton Energy Services Inc. et al.*, Case No. 6:21-CV-00367, Dkt. 99 at ¶¶ 73 – 284.

8. ProFrac is a corporation duly organized and existing under the laws of the state of Delaware. Its principal place of business is located at 333 Shops Boulevard, Willow Park, Texas 76087.

9. Formed in 2021, ProFrac claims to be an “innovation-driven energy services company providing hydraulic fracturing” with a “focus[] on employing new technologies to significantly reduce ‘greenhouse gas’ [] emissions and increase efficiency in what has historically been an emissions-intensive component of the unconventional [exploration and production] development process.” *See* ProFrac Registration Statement, Form S-1, dated November 19, 2021.<sup>3</sup>

10. ProFrac boasts that its “Simul-Frac service significantly improves pad efficiency by up to 50% with higher average barrel per minute (bpm), stages per day, and average lateral feet per day. This design also reduces fuel consumption and overall time to frac the wells.” *See* <https://profrac.com/services/simul-frac/>.

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<sup>3</sup> <https://www.sec.gov/Archives/edgar/data/1881487/000119312521335617/d897680ds1.htm>

### **JURISDICTION AND VENUE**

11. This Court has original subject matter jurisdiction over this action in accordance with 28 U.S.C. §§ 1331 and 1338(a) because this action arises under the patent laws of the United States, 35 U.S.C. § 101, *et seq.*

12. The Court has personal jurisdiction over USWS because USWS maintains a regular and established place of business in the State of Texas within this District and has committed acts of patent infringement in the State of Texas and in this District. For example, USWS conducts business in this District by importing, making, using, offering for sale, selling, and/or advertising hydraulic fracturing products and services that are alleged herein to infringe the Asserted Halliburton Patents in both Texas and in this District, which constitute acts of patent infringement in the State of Texas and in this District. At the time of filing this complaint, USWS has set up its hydraulic fracturing spreads on well sites and provided its hydraulic fracturing products and services at sites in the Western District of Texas, including in the Wolfcamp region and Southern Eagle Ford Shale. See <http://uswellservices.com/2018/01/usws-begins-operating-wolfcamp-southern-eagle/>. In addition, USWS has set up its hydraulic fracturing spreads on well sites and provided its hydraulic fracturing products and services at sites in Pleasanton, Pecos County, Loving County, Ward County, and Midland County, all in the Western District of Texas. As a result, USWS has purposely placed its products and services into the stream of commerce with the expectation that they will be purchased and used by customers located in Texas and in this District. Defendants' customers in Texas and in this District have purchased and continue to purchase and use Defendants' products and services.

13. USWS has a regular and established place of business in this District. As an example, USWS maintains a place of business for its employees and customers at well sites where

USWS is providing well fracturing services in this District. Venue is proper as to USWS in this District under 28 U.S.C. § 1400(b) at least because USWS has committed acts of infringement in this District and has a regular and established place of business in this District.

14. The Court has personal jurisdiction over ProFrac because ProFrac maintains a regular and established place of business in the State of Texas within this District and has committed acts of patent infringement in the State of Texas and in this District. For example, ProFrac conducts business in this District by importing, making, using, offering for sale, selling, and/or advertising hydraulic fracturing products and services that are alleged herein to infringe the Asserted Halliburton Patents in both Texas and in this District, which constitute acts of patent infringement in the State of Texas and in this District. At the time of filing this amended complaint, ProFrac has set up its hydraulic fracturing spreads on well sites and provided its hydraulic fracturing products and services at sites in the Western District of Texas, including Odessa and Pleasanton, Texas. *See* <https://profrac.com/locations/>. As a result, ProFrac has purposely placed its products and services into the stream of commerce with the expectation that they will be purchased and used by customers located in Texas and in this District. ProFrac's customers in Texas and in this District have purchased and continue to purchase and use ProFrac's products and services.

15. ProFrac has a regular and established place of business in this District. As an example, ProFrac maintains a place of business for its employees and customers at well sites where ProFrac is providing well fracturing services in this District. These locations include the Odessa, Texas site located at 9163 West Murphy Street, Odessa, Texas 79766 and the Pleasanton site located at 3195 Coughran Road, Pleasanton, Texas 78064. Venue is proper as to ProFrac in this

District under 28 U.S.C. § 1400(b) at least because ProFrac has committed acts of infringement in this District and has a regular and established place of business in this District.

**HALLIBURTON'S PIONEERING EFFORTS IN THE OIL AND GAS INDUSTRY  
AND THE PATENTS-IN-SUIT**

16. Halliburton is a global leader in the energy industry and a pioneer in oilfield exploration and well treatment systems.

17. Halliburton's investments and operations in wellsite preparation and production began nearly a century ago. Halliburton's pioneering efforts in performing oilfield injection jobs using mobile pumping systems date back to the 1920s. *See, e.g.*, U.S. Patent No. 1,486,883. As another example, Halliburton's founder (Erle P. Halliburton) was awarded U.S. Patent No. 1,369,891 in 1921 for his groundbreaking and revolutionary inventions in the field of oilfield and well completion operations—more than nine decades prior to Defendants' formation.

18. In 1949, Halliburton became the first company to develop innovative processes to commercially perform hydraulic fracturing. "On 17 March, 1949, Halliburton conducted the first two commercial fracturing treatments in Stephens County, Oklahoma and Archer County, Texas." *See* Carl T. Montgomery and Michael B. Smith, "Hydraulic Fracturing: History of an Enduring Technology," *Journal of Petroleum Technology* vol. 62 issue 12 p. 26 (Dec. 2010).

19. Halliburton's revolutionary activities in the field of well completions led to its inventions in the field of electric fracturing. As early as 2005, Halliburton had been implementing electric motors for fracturing pumping skids, and developing methods and systems for repurposing natural gas obtained from the field towards its fracturing operations. Several of the patents asserted in this complaint are a result of Halliburton's early efforts in the field of electric fracturing, dating back to the early 2000s, if not earlier.

20. In keeping with Halliburton's storied history of innovation, on September 11, 2009, engineers at Halliburton filed U.S. Patent Application No. 12/557,730, which issued as U.S. Patent No. 8,444,312 (the "'312 Patent"). Halliburton has filed-for and been awarded several reissue patents relating to the '312 Patent.

21. On February 20, 2018, the USPTO duly and legally issued U.S. Patent No. RE 46,725 (the "'725 Patent"), entitled "Electric or Natural Gas Fired Small Footprint Fracturing Fluid Blending and Pumping Equipment." The '725 Patent is assigned to Halliburton. A true and correct copy of the '725 Patent is attached as Exhibit A. The '725 Patent was asserted in the 367 Case. Defendants' infringement, however, is widespread and ongoing and they continue to release new generations of their infringing fracturing systems that also infringe the '725 Patent as explained below.

22. On November 5, 2019, the USPTO duly and legally issued U.S. Patent No. RE 47,695 (the "'695 Patent"), entitled "Electric or Natural Gas Fired Small Footprint Fracturing Fluid Blending and Pumping Equipment." The '695 Patent is assigned to Halliburton. A true and correct copy of the '695 Patent is attached as Exhibit B. The '695 Patent was asserted in the 367 Case. Defendants' infringement, however, is widespread and ongoing and they continue to release new generations of their infringing fracturing systems that also infringe the '695 Patent as explained below.

23. On September 6, 2016, the USPTO duly and legally issued U.S. Patent No. 9,435,333 (the "'333 Patent"), entitled "Corrosion Resistant Fluid Ends for Well Service Pumps." The '333 Patent is assigned to Halliburton. A true and correct copy of the '333 Patent is attached as Exhibit C. The '333 Patent was asserted in the 367 Case. Defendants' infringement, however,



is widespread and ongoing and they continue to release new generations of their infringing fracturing systems that also infringe the '333 Patent as explained below.

24. On May 24, 2022, the USPTO duly and legally issued U.S. Patent No. RE49,083 (the "'083 Patent"), entitled "Methods of generating and using electricity at a well treatment." The '083 Patent is assigned to Halliburton. A true and correct copy of the '083 Patent is attached as Exhibit D.

25. On July 19, 2022, the USPTO duly and legally issued U.S. Patent No. RE49,140 (the "'140 Patent"), entitled "Methods of performing well treatment operations using field gas." The '140 Patent is assigned to Halliburton. A true and correct copy of the '140 Patent is attached as Exhibit E.

26. On August 2, 2022, the USPTO duly and legally issued U.S. Patent No. RE49,155 (the "'155 Patent"), entitled "Electric or natural gas fired small footprint fracturing fluid blending and pumping equipment." The '155 Patent is assigned to Halliburton. A true and correct copy of the '155 Patent is attached as Exhibit F.

27. On August 2, 2022, the USPTO duly and legally issued U.S. Patent No. RE49,156 (the "'156 Patent"), entitled "Methods of providing electricity used in a fracturing operation." The '156 Patent is assigned to Halliburton. A true and correct copy of the '156 Patent is attached as Exhibit G.

28. On April 26, 2011, the USPTO duly and legally issued U.S. Patent No. 7,931,082 (the "'082 Patent"), entitled "Method and system for centralized well treatment." The '082 Patent is assigned to Halliburton. A true and correct copy of the '082 Patent is attached as Exhibit H.

29. On May 1, 2020, Halliburton and its affiliate Halliburton Technologies entered into a license agreement in which Halliburton granted Halliburton Technologies an exclusive license

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to the Asserted Patents which included the right to make, have made, use, offer for sale, sell, import, and provide products and services based upon or supported by the Asserted Halliburton Patents. However, Halliburton retained certain substantial rights, including the right to sue for infringement of the Asserted Halliburton Patents.

30. On December 24, 2021, the rights previously granted to Halliburton Technologies were transferred to HGTL. Collectively, Halliburton, HGTL, and Halliburton Technologies own all substantial rights in the Asserted Halliburton Patents.

### **U.S. WELL SERVICES LLC AND ITS INFRINGING PRODUCTS AND SERVICES**

31. USWS was formed in 2012, with its headquarters in Houston, Texas, and offices in San Angelo, Texas—approximately nine decades after Halliburton began operations in the oil and gas industry.

32. USWS purports to perform hydraulic fracturing services in oil and natural gas basins. USWS claims to be “one of the pioneer companies in developing the electric pressure pumping industry” and boasts that its “Clean Fleet® technology is supported by an intellectual property portfolio, consisting of 62 granted patents and an additional 201 pending patents.” *See* U.S. Well Services Annual Report, Form 10-K, dated March 30, 2022.

33. USWS’s patent portfolio, however, was acquired based on a series of omissions and material misrepresentations before the USPTO by some of its founding members dating all the way back to November 16, 2012 and its first patent filing before the USPTO. *See U.S. Well Services et al. v. Halliburton Energy Services Inc. et al.*, Case No. 6:21-CV-00367, Dkt. 99 at ¶¶ 73 – 284.

34. Since at least 2018, USWS has provided its hydraulic fracturing services to multiple locations in the Western District of Texas, including in Pleasanton, Pecos County, Loving County, Ward County, and Midland County, Texas.

35. USWS advertises that it provides hydraulic fracturing equipment and services that power pumps with natural gas and electricity, which USWS markets as “Clean Fleet.” *See* U.S. Well Services, *Clean Fleet* (last visited August 31, 2022).<sup>4</sup> On May 19, 2021, USWS announced a new Clean Fleet model, Nyx Clean Fleet. U.S. Well Services, *U.S. Well Services Announces Next-Generation Nyx Clean Fleet Pump* (May 19, 2021).<sup>5</sup> USWS advertises that “it can deliver a Nyx Clean Fleet, consisting of ten pump trailers totaling 60,000 HHP, two blenders and a combination switchgear for a capital cost of approximately \$23 million.” *Id.* Nyx uses “two independently controlled electric motors and frac pumps to provide 6,000 hydraulic horsepower (“HHP”) on a single trailer.” *Id.*

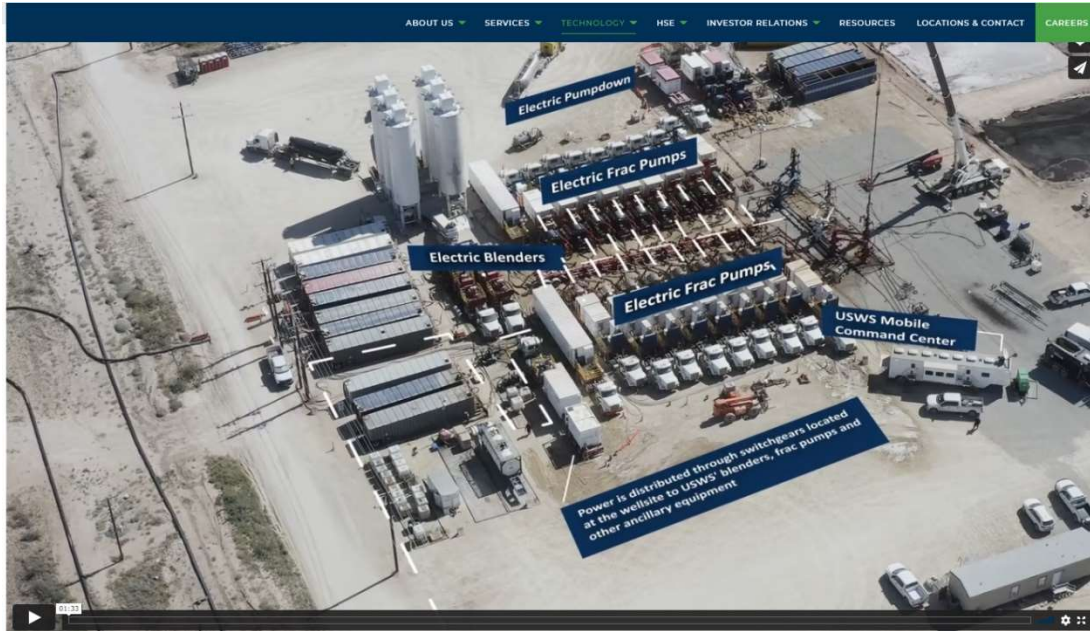
36. A video of the Clean Fleet equipment is provided on the USWS website, which shows “Electric Frac Pumps,” and ancillary equipment including but not limited to a “USWS Mobile Command Center,” “Electric Pumpdown,” “Electric Blenders,” sand equipment including sand silos and a sand conveyor, water/hydration tanks, a reel and crane, etc. U.S. Well Services, *Technology & Innovation* (last visited August 31, 2022).<sup>6</sup>

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<sup>4</sup> <http://uswellservices.com/services/#clean-fleet>

<sup>5</sup> <https://ir.uswellservices.com/news-events/press-releases/detail/59/u-s-well-services-announces-next-generation-nyx-clean>

<sup>6</sup> <http://uswellservices.com/technology/>



37. Nyx Clean Fleet “is designed to be powered by mobile generators, micro-grid applications, like our PowerPath technology, and is not only capable of using utility grid power, but is also compliant with all associated requirements.” *U.S. Well Services Announces Next-Generation Nyx Clean Fleet Pump* (May 19, 2021).<sup>7</sup> USWS’s website explains, “PowerPath technology allows power generation to be centrally located among multiple hydraulic fracturing pads and to transmit power several miles away via overhead lines to on-site Clean Fleet® pumping equipment....PowerPath® can be utilized to create mobile, long distance micro-grids, to hydraulic pressure pump numerous pads. In addition, PowerPath® can be utilized to provide power for oilfield equipment such as drilling rigs and other oilfield equipment.” *Id.*

<sup>7</sup> <https://ir.uswellservices.com/news-events/press-releases/detail/59/u-s-well-services-announces-next-generation-nyx-clean>

38. USWS advertises that “[t]he Nyx control system also provides automatic intelligent pump rate control based on the continuous monitoring of equipment health conditions.” *U.S. Well Services Announces Next-Generation Nyx Clean Fleet Pump* (May 19, 2021).<sup>8</sup>

#### **PROFRAC HOLDING CORP. AND ITS INFRINGING PRODUCTS AND SERVICES**

39. ProFrac was formed in 2021, with its headquarters in Willow Park, Texas—approximately a century after Halliburton began operations in the oil and gas industry.<sup>9</sup>

40. ProFrac purports to be an “innovation-driven energy services company providing hydraulic fracturing” with a “focus[] on employing new technologies to significantly reduce ‘greenhouse gas’ [] emissions and increase efficiency in what has historically been an emissions-intensive component of the unconventional [exploration and production] development process.” *See* ProFrac Registration Statement, Form S-1, dated November 19, 2021.<sup>10</sup>

41. Since at least 2021, ProFrac has provided its hydraulic fracturing services to multiple locations in the Western District of Texas, including in Pleasanton and Odessa, Texas.

42. ProFrac defines Simul-Frac as a “completion technique where two horizontal wells are stimulated at the same time using a single fleet.” *See* <https://profrac.com/services/simul-frac/>.

43. ProFrac boasts that its “Simul-Frac service significantly improves pad efficiency by up to 50% with higher average barrel per minute (bpm), stages per day, and average lateral feet per day. This design also reduces fuel consumption and overall time to frac the wells.” *See* <https://profrac.com/services/simul-frac/>.

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<sup>8</sup> <https://ir.uswellservices.com/news-events/press-releases/detail/59/u-s-well-services-announces-next-generation-nyx-clean>

<sup>9</sup> ProFrac Services was formed in May 2016 and is a subsidiary of ProFrac Holdings Corp. *See* <https://profrac.com/about-us/>.

<sup>10</sup> <https://www.sec.gov/Archives/edgar/data/1881487/000119312521335617/d897680ds1.htm>

44. ProFrac's usage of Simul-Frac has improved its efficiency and thereby lowered average well costs by \$400,000. *See* Jace Bullinger and Timothy Reist, "'Simul-Frac' Technique Helps Shale Operator to Set Record," Hart Energy (June 2021).

45. Based on efficiency results, at least one of ProFrac's customers has "switched its completion design to simul-frac based on an equipment setup and layout provided by ProFrac." *See* Jace Bullinger and Timothy Reist, "'Simul-Frac' Technique Helps Shale Operator to Set Record," Hart Energy (June 2021).

46. As a result of the switch to simul-frac, ProFrac's customer "saw a notable improvement to overall average bbl/min, increasing the rate from 120 to 160 bbl/min. On one of the wells, ProFrac was able to test even higher efficiencies by increasing the rate further to 180 bbl/min, which successfully held through a full stage. Based on the increased bbl/min, there were clear environmental advantages in the reduction of diesel used to operate the pumps, as well as improvements to the equipment run life and maintenance practices through using the equipment more efficiently to achieve a better result." *See* Jace Bullinger and Timothy Reist, "'Simul-Frac' Technique Helps Shale Operator to Set Record," Hart Energy (June 2021) (<https://www.hartenergy.com/exclusives/simul-frac-technique-helps-shale-operator-set-record-194783#:~:text=Running%20the%20simul%2Dfrac%20design,in%20one%2024%2Dhour%20period.>).

47. After running the simul-frac design, ProFrac's customer experienced a host of benefits including, the customer setting a record for lateral feet per day and the number of stages completed per day. Specifically, the customer "complet[ed] 18 stages and 4,320 lateral feet in one 24-hour period. *See* Jace Bullinger and Timothy Reist, "'Simul-Frac' Technique Helps Shale Operator to Set Record," Hart Energy (June 2021) (<https://www.hartenergy.com/exclusives/simul->

frac-technique-helps-shale-operator-set-record-

194783#:~:text=Running%20the%20simul%2Dfrac%20design,in%20one%2024%2Dhour%20p  
eriod.).

### **CLAIMS FOR RELIEF<sup>11</sup>**

#### **COUNT 1: INFRINGEMENT OF U.S. PATENT NO. RE46,725**

48. Halliburton and Halliburton Technologies incorporate each of the above paragraphs by reference.

49. Defendants' products and/or services that infringe the '725 Patent include, but are not limited to, hydraulic fracturing equipment and services that power pumps with either natural gas or electricity, which USWS refers to as Nyx Clean Fleet (including Fleet 17 and subsequent fleets) and ProFrac refers to as Electric Frac Fleets ("Defendants' Fleet"),. *See, e.g.,* <http://uswellservices.com/services/#clean-fleet>, <https://profrac.com/services/e-frac/>.

50. Defendants have committed acts of direct infringement of the '725 Patent under 35 U.S.C. §271(a) at least by making, using, selling, offering to sell, and/or importing into the United States products and systems described herein.

51. Defendants have directly infringed—literally and/or under the doctrine of equivalents—at least Claim 83 of the '725 Patent by making, using, selling, importing and/or offering for sale the Defendants' Fleet and components thereof.

52. Claim 83 of the '725 Patent recites:

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<sup>11</sup> With respect to the marking requirements of 35 U.S.C. 287(a), USWS has had actual notice of the '725 Patent, the '695 Patent and the '333 Patent since at least June 21, 2021, when Halliburton asserted the '725 Patent, the '695 Patent and the '333 Patent in the 367 Case. With regards to the '083 Patent, the '140 Patent, the '155 Patent and the '156 Patent, no marking is required.

A system for preparing fluid for use at a well having a wellbore, the system comprising:

at least one storage unit adapted to connect to a vehicle for transportation;

at least one pre-gel blender having a pre-gel storage unit coupled to the at least one pre-gel blender, wherein the pre-gel storage unit comprises a space in which contents of the pre-gel storage unit are allowed to hydrate;

at least one blender coupled to receive a component of a first fluid from the at least one storage unit through a hopper, the at least one blender having inputs from at least the at least one storage unit, and the pre-gel storage unit;

at least one pump for applying pressure to the first fluid or a second fluid, and the at least one pump coupled to provide an input to the at least one blender; and

an electric power supply, including an electrical generator located on-site, providing electrical power to the at least one of the at least one blender and the at least one pump.

53. On information and belief, Defendants' Fleet includes a system for preparing a fluid for use at a well having a wellbore. *See, e.g.*, USWS Form 10-K/A statement (5/17/2021) p. 8.<sup>12</sup>

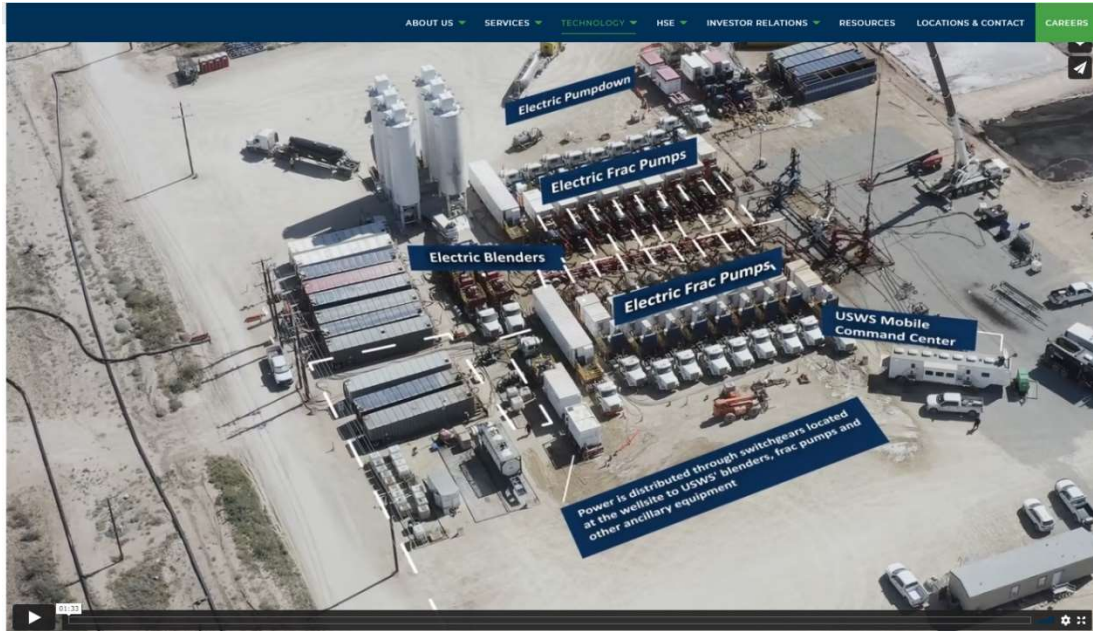
54. On information and belief, Defendants' Fleet includes at least one storage unit adapted to connect to a vehicle for transportation. For example, multiple such storage units are depicted in the USWS Technology description.<sup>13</sup>

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<sup>12</sup> <https://ir.uswellservices.com/sec-filings/all-sec-filings/content/0001564590-21-028173/0001564590-21-028173.pdf>

<sup>13</sup> <http://uswellservices.com/technology/>





55. On information and belief, Defendants' Fleet includes at least at least one pre-gel blender having a pre-gel storage unit, wherein the pre-gel storage unit comprises a space in which contents of the pre-gel storage unit are allowed to hydrate.

56. On information and belief, Defendants' Fleet includes at least one blender coupled to receive a component of a first fluid through a hopper, at least one blender having inputs from at least one storage unit, and at least one pre-gel blender. An exemplary blender is shown on the USWS Technology website, copied above, and labeled "Electric Blenders."

57. On information and belief, Defendants' Fleet includes at least one pump for applying pressure to the first fluid or a second fluid, and at least one pump coupled to provide an input to at least one blender. The USWS Technology website, copied above, depicts multiple pumps, labeled "Electric Frac Pumps."

58. On information and belief, Defendants' Fleet includes an electric power supply, including an electrical generator located on-site, providing electrical power to at least one blender

and at least one pump. For example, the USWS Technology website, copied above, labels “Electric Blenders” and “Electric Frac Pumps.”

59. Defendants’ continued infringement after obtaining knowledge of the ’725 Patent amounts to willful infringement. USWS has had knowledge of the ’725 Patent and the knowledge of its infringement of the patent since at least service of Halliburton’s Amended Answer and Counterclaims (adding patent infringement counterclaims) and Halliburton Technologies Counterclaims in the case styled as *U.S. Well Services LLC v Halliburton Energy Services, Inc. et al.*, Case No. 6:21-CV-00367-ADA, (Dkt. 43) filed on July 27, 2021.

60. Unless and until it is enjoined by this Court, Defendants will continue to infringe the ’725 Patent, directly or indirectly, or under the doctrine of equivalents. Defendants’ infringing acts are causing and will continue to cause Halliburton and Halliburton Technologies irreparable harm, for which there is no adequate remedy at law. Under 35 U.S.C. § 283, Halliburton and Halliburton Technologies are entitled to a permanent injunction against further infringement.

### **COUNT 2: INFRINGEMENT OF U.S. PATENT NO. RE47,695**

61. Halliburton and Halliburton Technologies incorporate each of the above paragraphs by reference.

62. Defendants’ products and/or services that infringe the ’695 Patent include, but are not limited to, hydraulic fracturing equipment and services that power pumps with either natural gas or electricity, which USWS refers to as Nyx Clean Fleet (including Fleet 17 and subsequent fleets) and ProFrac refers to as Electric Frac Fleets (“Defendants’ Fleet”). *See, e.g.*, <http://uswellservices.com/services/#clean-fleet>, <https://profrac.com/services/e-frac/>.

63. Defendants have committed acts of direct infringement of the '695 Patent under 35 U.S.C. §271(a) at least by making, using, selling, offering to sell, and/or importing into the United States products and systems described herein.

64. Defendants have directly infringed—literally and/or under the doctrine of equivalents—at least Claim 56 of the '695 Patent by making, using, selling, importing and/or offering for sale Defendants' Fleet and components thereof.

65. Claim 56 of the '695 Patent recites:

56. A method of preparing a fluid for use in a subterranean operation, the method comprising:

- a) transferring at least one component of the fluid to a blender;
- b) blending the at least one component in the blender to prepare the fluid;
- c) using a transfer pump to transfer the fluid to a down hole pump; and
- d) using the down hole pump to pump the fluid into a down hole location, wherein natural gas obtained from a field on which the subterranean operation is being performed is used to power the transfer pump, the down hole pump, or a combination thereof.

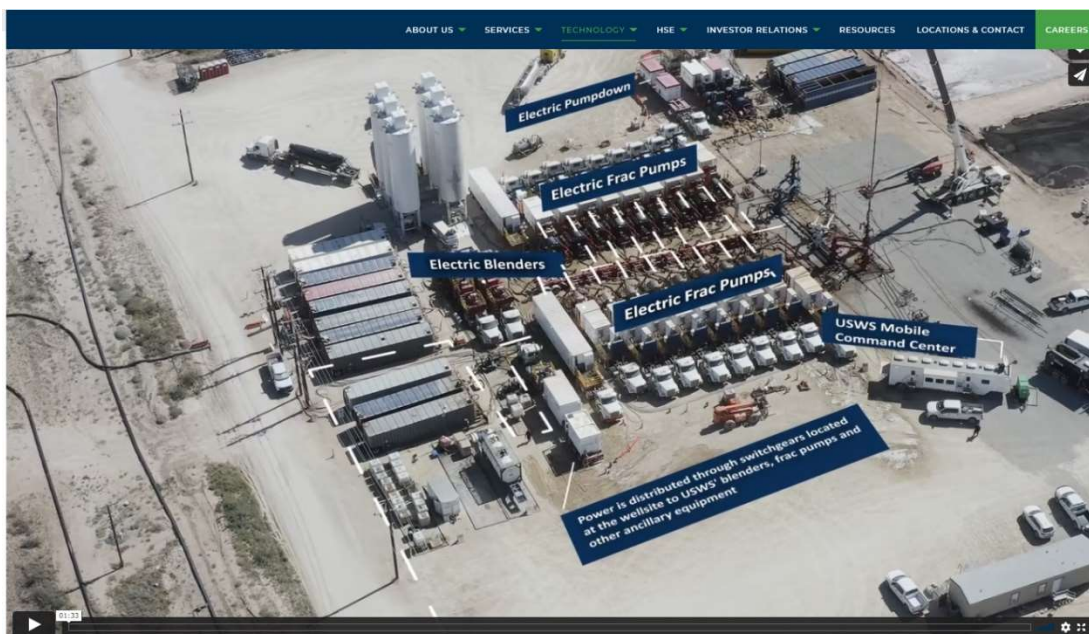
66. On information and belief, Defendants' Fleet prepares a fluid for use in a subterranean operation. *See, e.g.*, USWS Form 10-K/A statement (5/17/2021) p. 8<sup>14</sup>

67. On information and belief, Defendants' Fleet transfers at least one component of the fluid to a blender. For example, the below image from USWS's website shows both sand storage units and fluid additive storage units upstream of a blender (labelled "Electric Blenders").<sup>15</sup>

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<sup>14</sup> <https://ir.uswellservices.com/sec-filings/all-sec-filings/content/0001564590-21-028173/0001564590-21-028173.pdf>

<sup>15</sup> <http://uswellservices.com/technology/>



68. On information and belief, Defendants' Fleet blends the at least one component in the blender to prepare the fluid, such as sand or water, and uses a transfer pump to transfer the fluid to a down hole pump. See [http://uswellservices.com/wp-content/uploads/2019/07/PSB\\_WHISPERFRAC\\_v.01.pdf](http://uswellservices.com/wp-content/uploads/2019/07/PSB_WHISPERFRAC_v.01.pdf).

69. On information and belief, Defendants' Fleet uses a down hole pump to pump the fluid into a down hole location, wherein natural gas obtained from a field on which the subterranean operation is being performed is used to power the transfer pump, the down hole pump, or a combination thereof. For example, Defendants use field gas to power its pumps. See Clearing the Air White Paper at p. 12 ("Using flared field gas further reduces CleanFleet's environmental footprint and improves its financial performance."); see also [http://uswellservices.com/wp-content/uploads/2018/10/USWS-Investor-Presentation-Oct-9-2018-Update\\_FINAL\\_Amended.pdf](http://uswellservices.com/wp-content/uploads/2018/10/USWS-Investor-Presentation-Oct-9-2018-Update_FINAL_Amended.pdf) at p.15 ("Natural gas generators create a significant economic advantage over diesel-powered pumps. Annual fuel savings estimated to be ~\$13 million at current prices. Use of lower value field gas reduces risk from tight diesel markets").

70. Defendants' continued infringement after obtaining knowledge of the '695 Patent amounts to willful infringement. USWS has had knowledge of the '695 Patent and the knowledge of its infringement of the patent since at least service of Halliburton's Amended Answer and Counterclaims (adding patent infringement counterclaims) and Halliburton Technologies Counterclaims in the case styled as *U.S. Well Services LLC v Halliburton Energy Services, Inc. et al.*, Case No. 6:21-CV-00367-ADA, (Dkt. 43) filed on July 27, 2021.

71. Unless and until it is enjoined by this Court, Defendants will continue to infringe the '695 Patent, directly or indirectly, or under the doctrine of equivalents. Defendants' infringing acts are causing and will continue to cause Halliburton and Halliburton Technologies irreparable harm, for which there is no adequate remedy at law. Under 35 U.S.C. § 283, Halliburton and Halliburton Technologies are entitled to a permanent injunction against further infringement.

### **COUNT 3: INFRINGEMENT OF U.S. PATENT NO. 9,435,333**

72. Halliburton and Halliburton Technologies incorporate each of the above paragraphs by reference.

73. Defendants' products and/or services that infringe the '333 Patent include, but are not limited to, hydraulic fracturing equipment and services that use corrosion resistant pumping systems, including the equipment used in USWS's Nyx Clean Fleet (including Fleet 17 and subsequent fleets) and ProFrac's Electric Frac Fleets and conventional fracturing fleets ("Defendants' Fleet"). See, e.g., <http://uswellservices.com/services/#clean-fleet>; <http://uswellservices.com/technology/>; <https://profrac.com/services/e-frac/>

74. Defendants have committed acts of direct infringement of the '333 Patent under 35 U.S.C. §271(a) at least by making, using, selling, offering to sell, and/or importing into the United States products and systems described herein.

75. Defendants have directly infringed—literally and/or under the doctrine of equivalents—at least Claim 1 of the '333 Patent by making, using, selling, importing and/or offering for sale Defendants' Fleet using corrosion resistant pumping systems and components thereof.

76. Claim 1 of the '333 Patent recites:

13. A method comprising:

providing a well service pump;

providing a fluid end body that comprises a corrosion resistant alloy (a) having a fatigue limit of at least 75 ksi and (b) comprising chromium as an alloying element at 5% or greater by weight of the corrosion resistant alloy;

installing the fluid end body in the well service pump; and

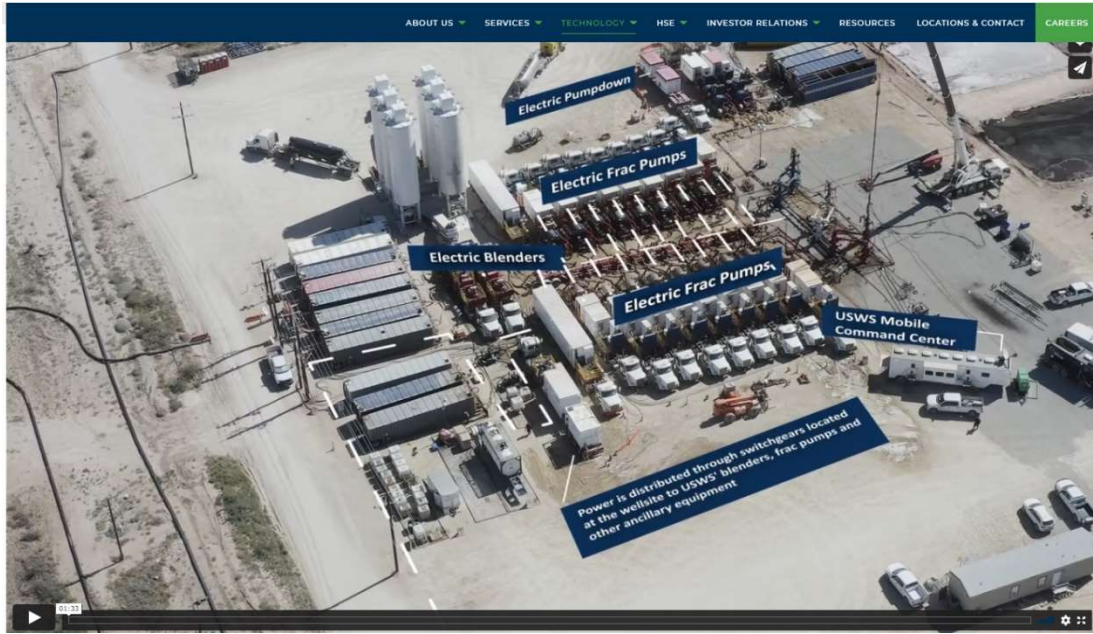
pumping an aqueous-based fluid through the fluid end body, wherein the fatigue limit is greater than or equal to a tensile stress assumed by the fluid end body when the well service pump operates at maximum working pressure while pumping the aqueous-based fluid, wherein the aqueous-based fluid has a salt concentration of about 4% by weight or greater.

77. On information and belief, Defendants' Fleet provides a well service pump. For example, USWS advertises a pumping system on its website (e.g., labeled "Electric Frac Pumps").<sup>16</sup> On information and belief, Defendants' diesel fracking fleets also provided a well service pump.

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<sup>16</sup> <http://uswellservices.com/technology/>





78. On information and belief, Defendants provide a fluid end body that comprises a corrosion resistant alloy (a) having a fatigue limit of at least 75 ksi and (b) comprising chromium as an alloying element at 5% or greater by weight of the corrosion resistant alloy. For example, a stainless steel fluid end body, such as may be used to prevent corrosion from the pumping of produced water, would be expected to have a fatigue limit of at least 75 ksi and to comprise chromium as an alloying element at 5% or greater by weight of the corrosion resistant alloy. USWS has exclusively used stainless steel fluid ends since at least 2018. *See* [http://uswellservices.com/wp-content/uploads/2018/10/USWS-Investor-Presentation-Oct-9-2018-Update\\_FINAL\\_Amended.pdf](http://uswellservices.com/wp-content/uploads/2018/10/USWS-Investor-Presentation-Oct-9-2018-Update_FINAL_Amended.pdf).

79. On information and belief, Defendants install the fluid end body in the well service pump that is used in Defendants' Fleet.

80. On information and belief, Defendants' Fleet pumps an aqueous-based fluid through the fluid end body, wherein the fatigue limit is greater than or equal to a tensile stress

assumed by the fluid end body when the well service pump operates at maximum working pressure while pumping the aqueous-based fluid, wherein the aqueous-based fluid has a salt concentration of about 4% by weight or greater. For example, the fatigue limit of a fluid end body would be expected to be greater than or equal to the tensile stress assumed by the fluid end body when the well service pump operates at maximum working pressure so as to prevent damage to the fluid end body. On information and belief, the fluids pumped through the fluid end body in Defendants' Fleet, such as produced water, has a salt concentration of about 4% by weight or greater.

81. Defendants' continued infringement after obtaining knowledge of the '333 Patent amounts to willful infringement. USWS has had knowledge of the '333 Patent and the knowledge of its infringement of the patent since at least service of Halliburton's Amended Answer and Counterclaims (adding patent infringement counterclaims) and Halliburton Technologies Counterclaims in the case styled as *U.S. Well Services LLC v Halliburton Energy Services, Inc. et al.*, Case No. 6:21-CV-00367-ADA, (Dkt. 43) filed on July 27, 2021.

82. Unless and until it is enjoined by this Court, Defendants will continue to infringe the '333 Patent, directly or indirectly, or under the doctrine of equivalents. Defendants' infringing acts are causing and will continue to cause Halliburton and Halliburton Technologies irreparable harm, for which there is no adequate remedy at law. Under 35 U.S.C. § 283, Halliburton and Halliburton Technologies are entitled to a permanent injunction against further infringement.

#### **COUNT 4: INFRINGEMENT OF U.S. PATENT NO. RE49,083**

83. Halliburton Plaintiffs incorporate each of the above paragraphs by reference.

84. Defendants' products and services that infringe the '083 Patent include, but are not limited to, hydraulic fracturing equipment and services, which USWS refers to as USWS's Clean Fleet and USWS's Nyx Clean Fleet on its website or ProFrac's Electric Frac Fleet ("Defendants'

HALLIBURTON'S SECOND AMENDED COMPLAINT FOR PATENT INFRINGEMENT



Fleet”). See U.S. Well Services, Inc., *U.S. Well Services Announces Next-Generation Nyx Clean Fleet Pump* (May 19, 2021);<sup>17</sup> see also <https://profrac.com/services/e-frac/>.

85. Defendants have committed acts of direct infringement of the ’083 Patent under 35 U.S.C. §271(a) at least by making, using, selling, offering to sell, and/or importing into the United States products and systems described herein.

86. Defendants have directly infringed—literally and/or under the doctrine of equivalents—at least Claim 27 of the ’083 Patent by making, using, selling, importing and/or offering for sale at least the Defendants’ Fleet and components thereof.

87. Claim 27 of the ’083 Patent recites:

27. A method of performing a fracturing operation comprising:

using one or more generators to produce electricity at a job site for a fracturing operation;

powering the one or more generators using only one or more of conditioned field gas, liquefied natural gas, or compressed natural gas;

having a solid material in a storage unit;

transferring the solid material from the storage unit;

using a blender to prepare a fracturing fluid comprising a liquid and the solid material;

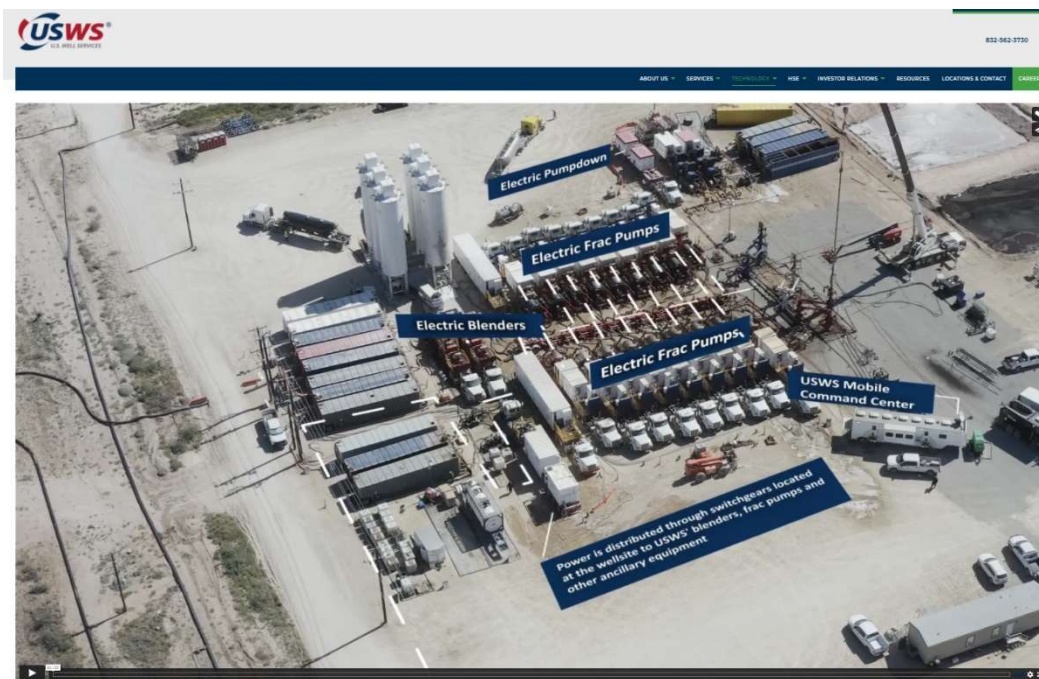
transferring the fracturing fluid from the blender to at least one pump; and

pumping the fracturing fluid into a down hole location using the at least one pump, wherein only electricity produced using the one or more generators at the job site is used to power the at least one pump.

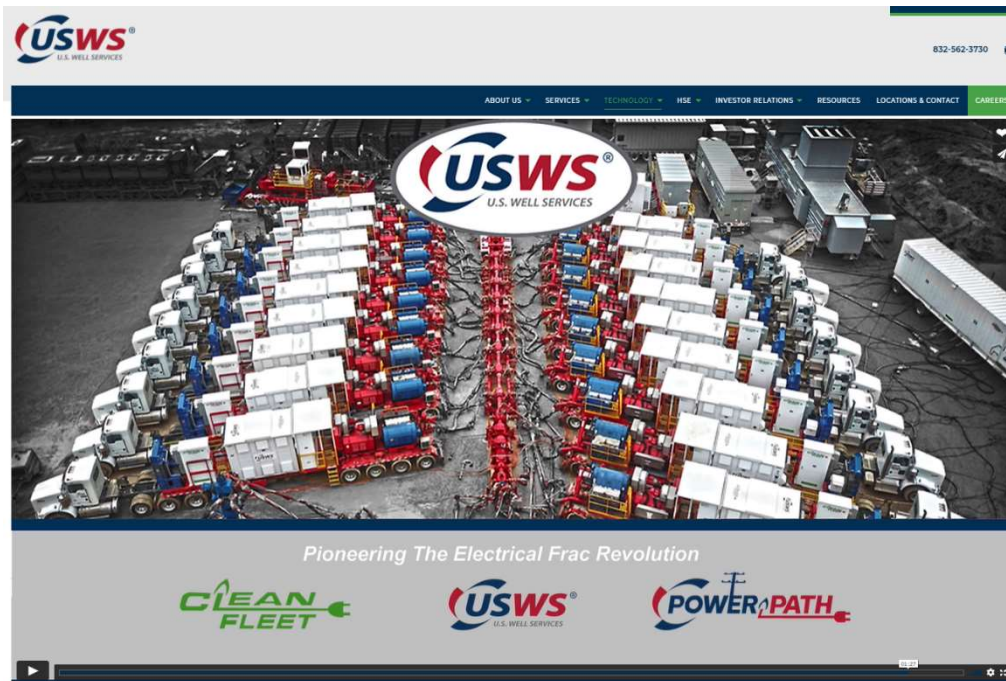
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<sup>17</sup> <https://ir.uswellservices.com/news-events/press-releases/detail/59/u-s-well-services-announces-next-generation-nyx-clean>

88. On information and belief, Defendants' products and services, specifically including the Defendants' Fleet, include a method of performing a fracturing operation. For example, Defendants demonstrate a method of performing a fracturing operation on its website, as shown in the two images below. U.S. Well Services, *Technology & Innovation* (last visited August 31, 2022)<sup>18</sup>. On information and belief, Defendants' Clean Fleet and Defendants' Nyx Clean Fleet operates by driving two independently controlled electric motors and frac pumps to provide 6,000 hydraulic horsepower ('HHP') on a single trailer.



<sup>18</sup> <http://uswellservices.com/technology/>

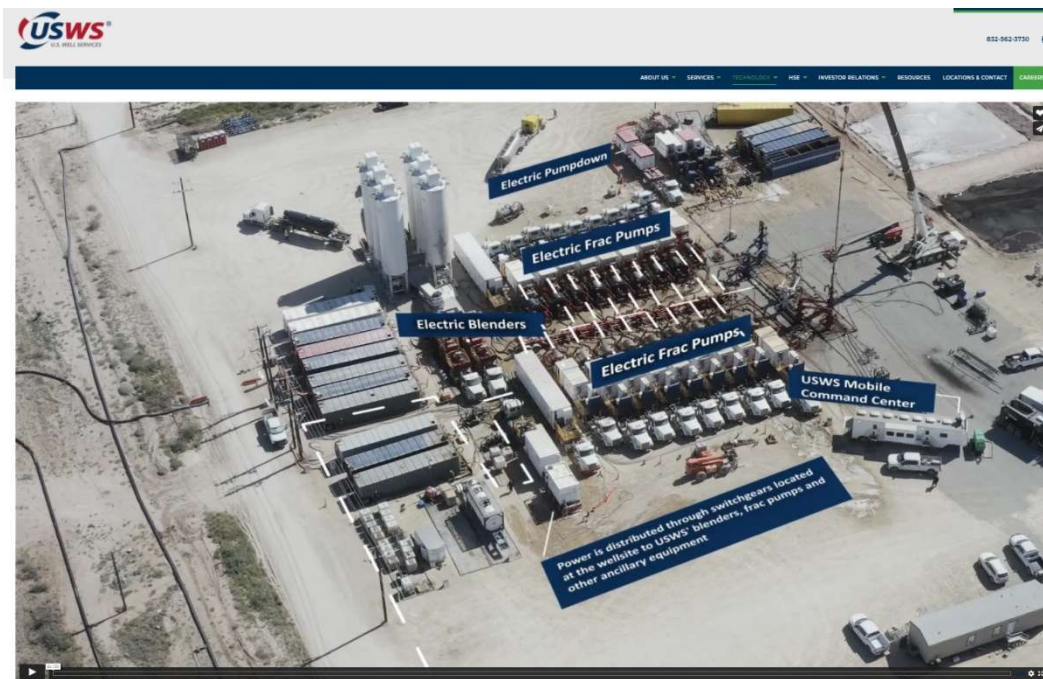


89. On information and belief, Defendants' products and services, specifically including the Defendants' Fleet, include using one or more generators to produce electricity at a job site for a fracturing operation. For example, Defendants' website provides a video of a fracturing operation using Defendants' Clean Fleet equipment where electricity from a power generation setup including one or more 30MW turbine generators is transmitted to an active pad site (well pad with active completion), as shown in the first image below. U.S. Well Services, *Technology & Innovation* (last visited August 31, 2022).<sup>19</sup> On information and belief, Defendants' Clean Fleet and Defendants' Nyx Clean Fleet is designed to be powered by mobile generators and micro grid applications (such as the PowerPath technology). At the active pad site, "[p]ower is distributed through switchgears located at the wellsite to Defendants' blenders, frac pumps, and

<sup>19</sup> <http://uswellservices.com/technology/>



other ancillary equipment” in order to perform the fracturing operation, as shown in the second image below.<sup>20</sup>



<sup>20</sup> <http://uswellservices.com/technology/>

90. On information and belief, Defendants’ products and services, specifically including the Defendants’ Fleet, include powering the one or more generators using only one or more of conditioned field gas, liquefied natural gas, or compressed natural gas. For example, USWS’s website provides a video of a fracturing operation using Defendants’ Clean Fleet equipment where the power generation setup including one or more 30MW turbine generators and a gas conditioning skid where the one or more turbine generators are powered using conditioned field gas supplied from the gas conditioning skid. U.S. Well Services, *Technology & Innovation* (last visited August 31, 2022).<sup>21</sup> On information and belief, Defendants’ electric, mobile well stimulations systems are powered by locally-supplied natural gas, including field gas sourced directly from the wellhead. In addition, Defendants advertise its F3 Fuel technology, which “allows for the use of field gas, compressed natural gas (“CNG”) or liquefied natural gas (“LNG”) as a fuel source.” See U.S. Well Services, *Technology & Innovation* (last visited August 31, 2022).

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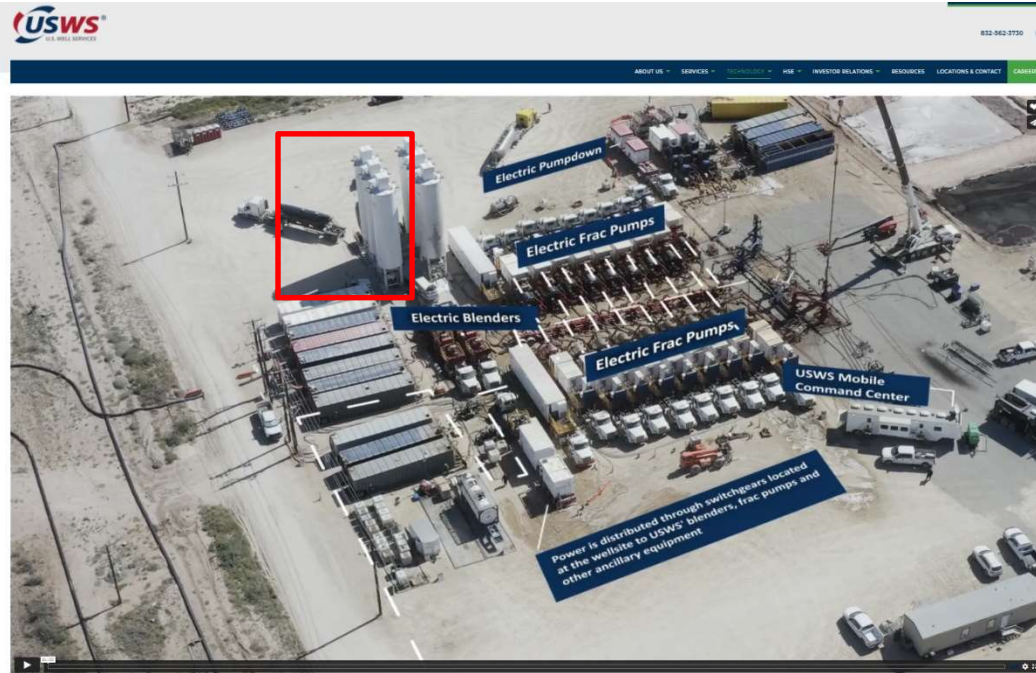
91. On information and belief, Defendants’ products and services, specifically including the Defendants’ Fleet, include having a solid material in a storage unit. For example, Defendants’ website provides a video of a fracturing operation using Defendants’ Clean Fleet equipment including sand silos (annotated in red) filled with a solid material such as sand (also known as proppant).<sup>23</sup>

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<sup>21</sup> <http://uswellservices.com/technology/>

<sup>22</sup> <http://uswellservices.com/technology/>

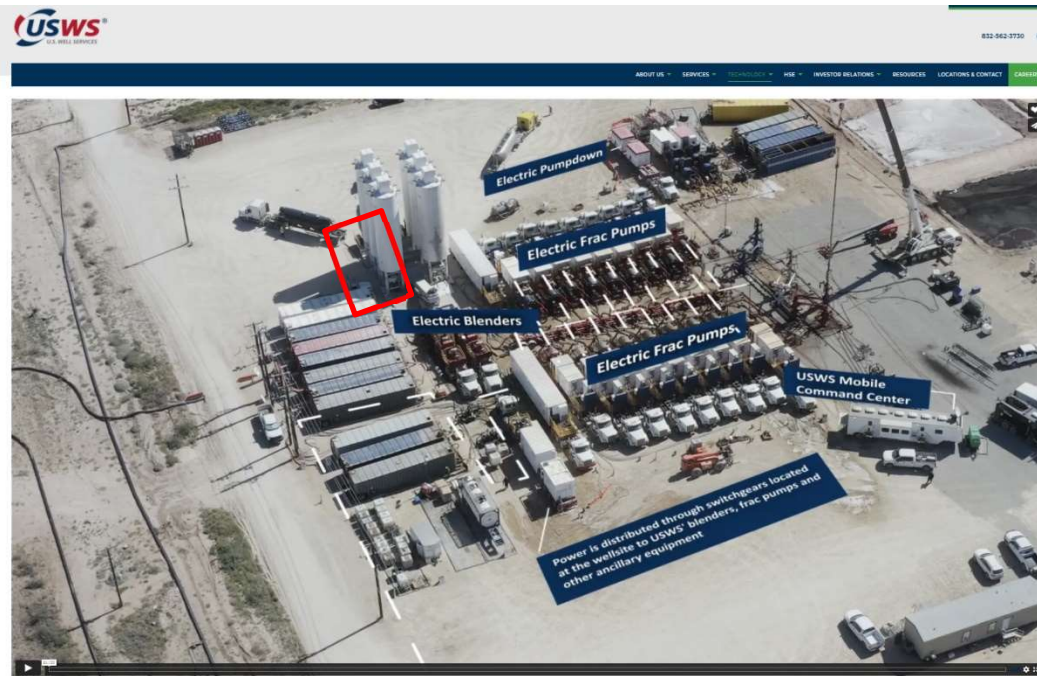
<sup>23</sup> <http://uswellservices.com/technology/>



92. On information and belief, Defendants' products and services, specifically including the Defendants' Fleet, include transferring the solid material from the storage unit. For example, USWS's website provides a video of a fracturing operation using Defendants' Clean Fleet equipment including a sand conveying system (annotated in red) that transfers sand from the sand silos to the nearby electric blenders.<sup>24</sup>

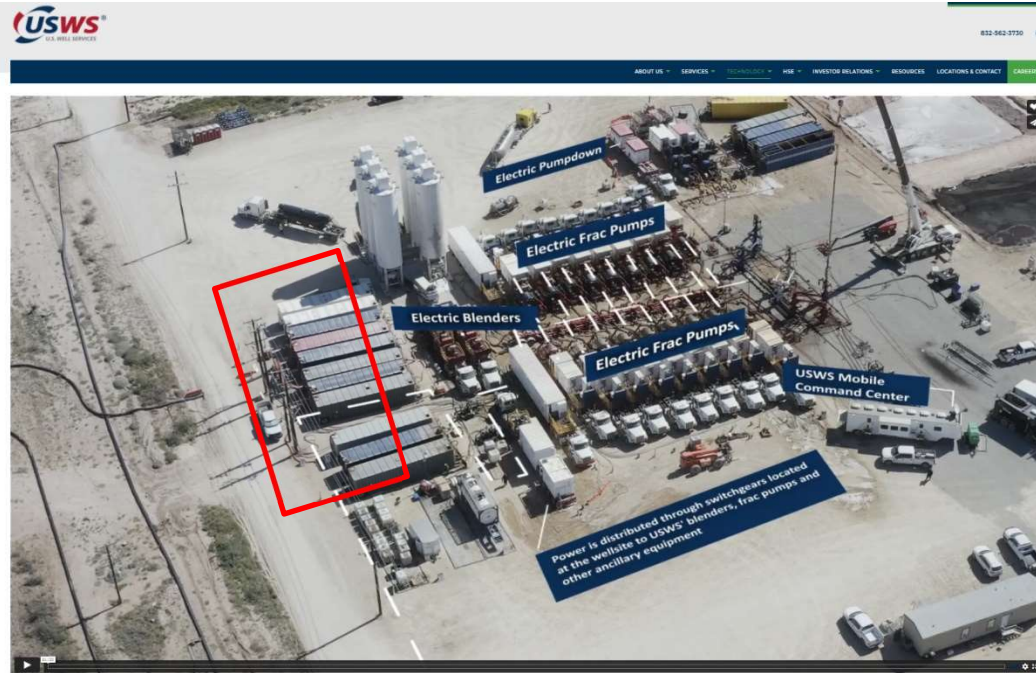
<sup>24</sup> <http://uswellservices.com/technology/>





93. On information and belief, Defendants' products and services, specifically including the Defendants' Fleet, include using a blender to prepare a fracturing fluid comprising a liquid and the solid material. For example, USWS's website provides a video of a fracturing operation using Defendants' Clean Fleet equipment including electric blenders that prepare a fracturing fluid including sand transferred from the sand equipment described above (i.e., sand silos and sand conveying system) and liquid provided by water/hydration tanks (annotated in red).<sup>25</sup>

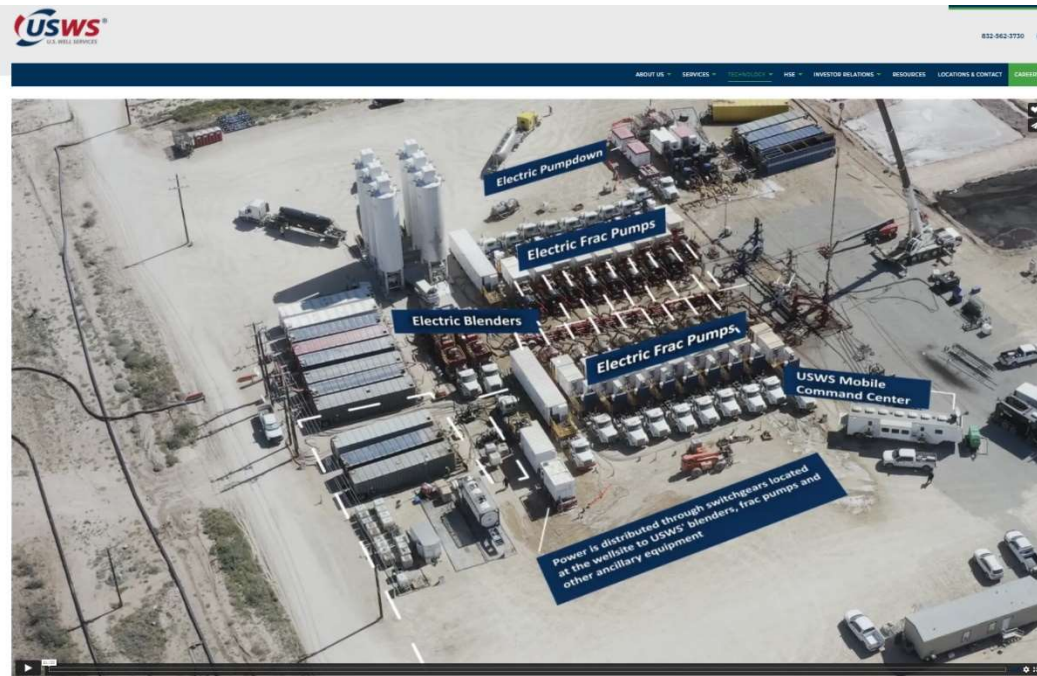
<sup>25</sup> <http://uswellservices.com/technology/>



94. On information and belief, Defendants' products and services, specifically including the Defendants' Fleet, include pumping the fracturing fluid into a down hole location using the at least one pump. For example, USWS's website provides a video of a fracturing operation using Defendants' Clean Fleet equipment including electric frac pumps that pump the fracturing fluid prepared by the nearby electric blenders down hole.<sup>26</sup>

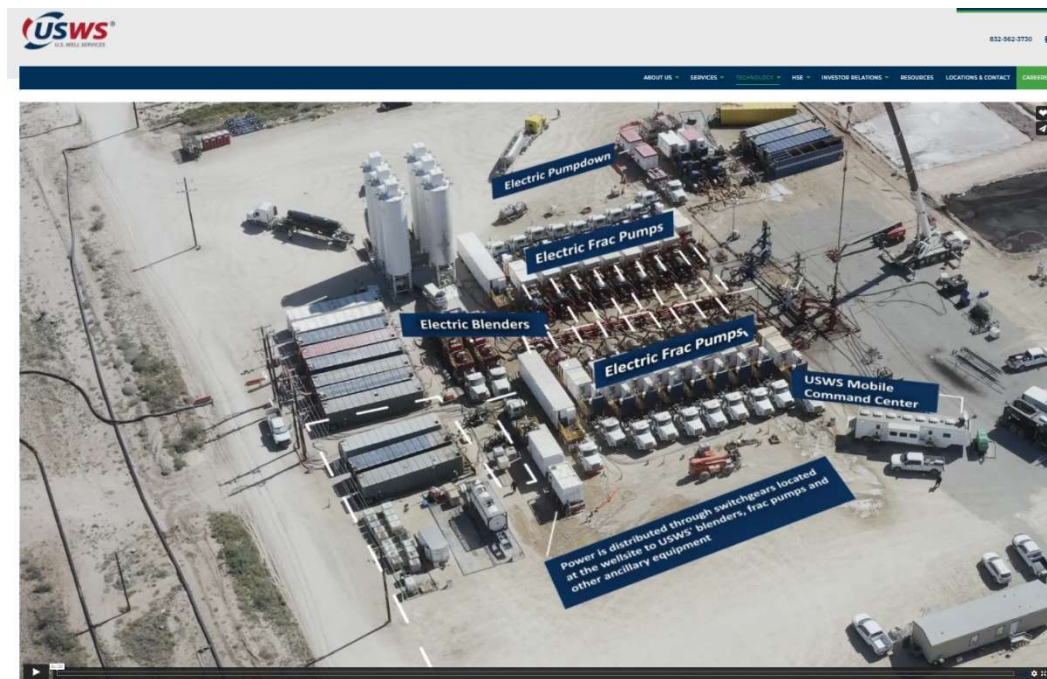
<sup>26</sup> <http://uswellservices.com/technology/>





95. On information and belief, Defendants’ products and services, specifically including the Defendants’ Fleet, include that only electricity produced using the one or more generators at the job site is used to power the at least one pump. For example, USWS’s website provides a video of a fracturing operation using Defendants’ Clean Fleet equipment where electricity from the power generation setup including the 30MW turbine generator is transmitted to an active pad site, as shown in the first image below.<sup>27</sup> At the active pad site, “[p]ower is distributed through switchgears located at the wellsite to Defendants’ blenders, frac pumps, and other ancillary equipment,” as shown in the second image below. *Id.*

<sup>27</sup> <http://uswellservices.com/technology/>



96. Unless and until it is enjoined by this Court, USWS will continue to infringe the '083 Patent, directly or indirectly, or under the doctrine of equivalents. Defendants' infringing acts are causing and will continue to cause Halliburton Plaintiffs irreparable harm, for which there

is no adequate remedy at law. Under 35 U.S.C. § 283, Halliburton Plaintiffs are entitled to a permanent injunction against further infringement.

**COUNT 5: INFRINGEMENT OF U.S. PATENT NO. RE49,140**

97. Halliburton Plaintiffs incorporate each of the above paragraphs by reference.

98. Defendants’ products and services that infringe the ’140 Patent include, but are not limited to, hydraulic fracturing equipment and services, which USWS refers to as USWS’s Clean Fleet and USWS’s Nyx Clean Fleet or ProFrac’s Electric Frac Fleet (“Defendants’ Fleet”). *See* U.S. Well Services, Inc., *U.S. Well Services Announces Next-Generation Nyx Clean Fleet Pump* (May 19, 2021);<sup>28</sup> *see also* <https://profrac.com/services/e-frac/>.

99. Defendants have committed acts of direct infringement of the ’140 Patent under 35 U.S.C. §271(a) at least by making, using, selling, offering to sell, and/or importing into the United States products and systems described herein.

100. Defendants have directly infringed—literally and/or under the doctrine of equivalents—at least Claim 27 of the ’140 Patent by making, using, selling, importing and/or offering for sale at least the Defendants’ Fleet and components thereof.

101. Claim 27 of the ’140 Patent recites:

27. A method of performing a fracturing operation comprising:

using a blender to prepare a fracturing fluid comprising a liquid and a solid material;

transferring the fracturing fluid from the blender to at least one pump;

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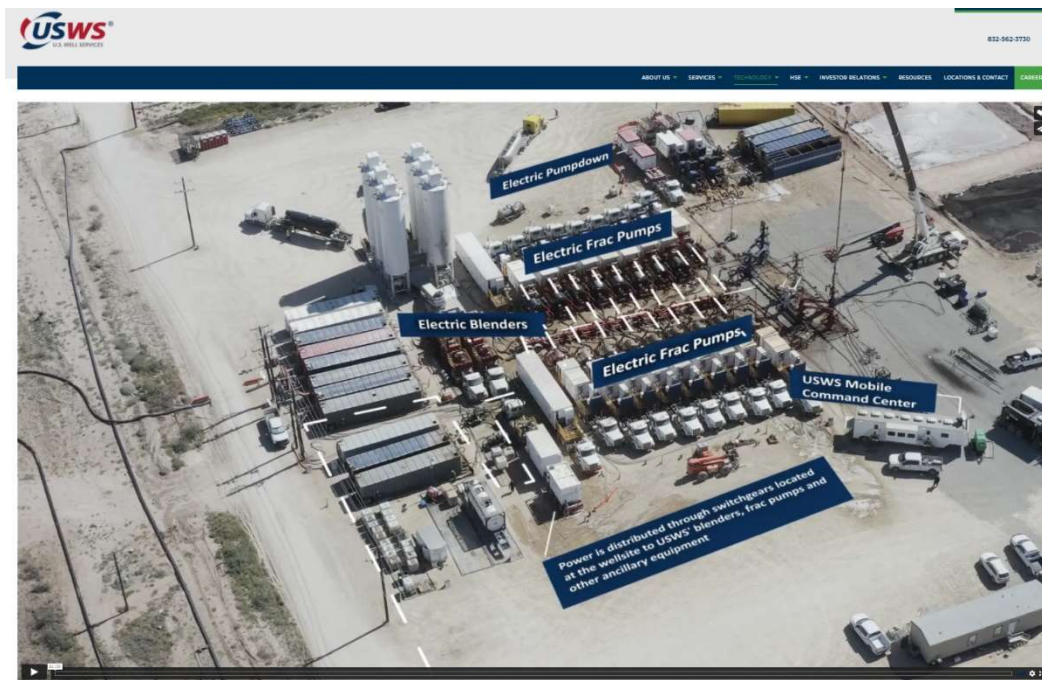
<sup>28</sup> <https://ir.uswellservices.com/news-events/press-releases/detail/59/u-s-well-services-announces-next-generation-nyx-clean>



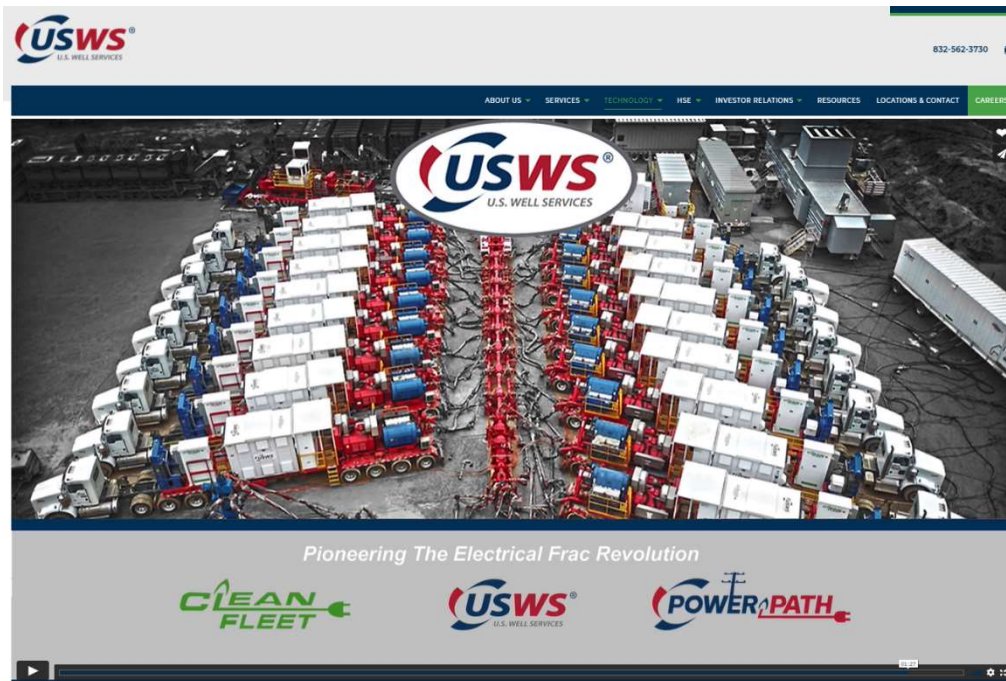
pumping the fracturing fluid into a down hole location using the at least one pump; and

powering the at least one pump with only one or both of: (a) one or more generators using only conditioned field gas, or (b) one or more engines using conditioned field gas and without using diesel.

102. On information and belief, Defendants' products and services, specifically including the Defendants' Fleet, include a method of performing a fracturing operation. For example, Defendants demonstrate a method of performing a fracturing operation on its website, as shown in the two images below. U.S. Well Services, *Technology & Innovation* (last visited August 31, 2022)<sup>29</sup>. On information and belief, the Defendants' Clean Fleet and Defendants' Nyx Clean Fleet operates by driving two independently controlled electric motors and frac pumps to provide 6,000 hydraulic horsepower ('HHP') on a single trailer.

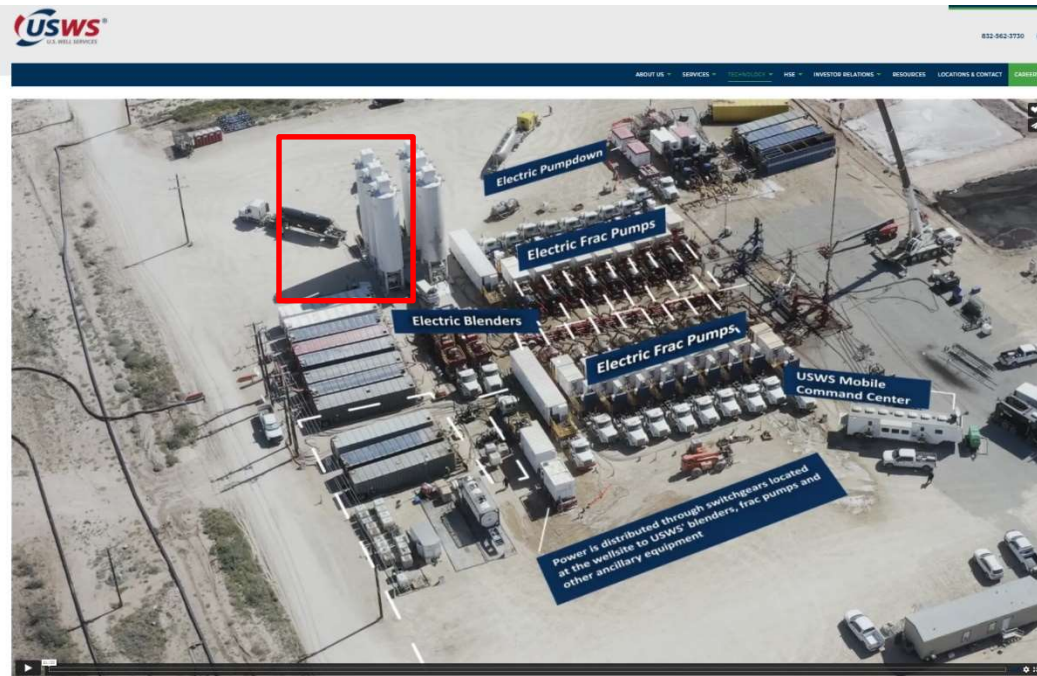


<sup>29</sup> <http://uswellservices.com/technology/>



103. On information and belief, Defendants' products and services, specifically including the Defendants' Fleet, include using a blender to prepare a fracturing fluid comprising a liquid and a solid material. For example, USWS's website provides a video of a fracturing operation using Defendants' Clean Fleet equipment including electric blenders that prepare a fracturing fluid including sand transferred from the sand equipment (i.e., sand silos and sand conveying system) and liquid provided by water/hydration tanks (annotated in red).<sup>30</sup>

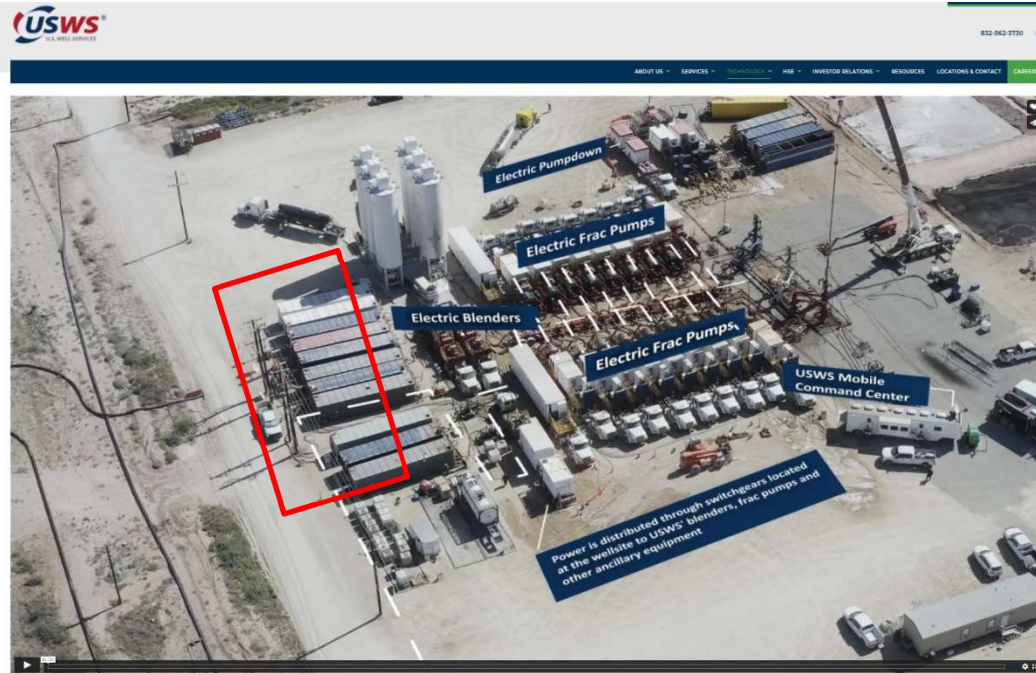
<sup>30</sup> <http://uswellservices.com/technology/>



104. On information and belief, Defendants' products and services, specifically including the Defendants' Fleet, include transferring the fracturing fluid from the blender to at least one pump. For example, USWS's website provides a video of a fracturing operation using Defendants' Clean Fleet equipment including electric blenders that prepare a fracturing fluid including sand transferred from the sand equipment described above (i.e., sand silos and sand conveying system) and liquid provided by water/hydration tanks (annotated in red).<sup>31</sup>

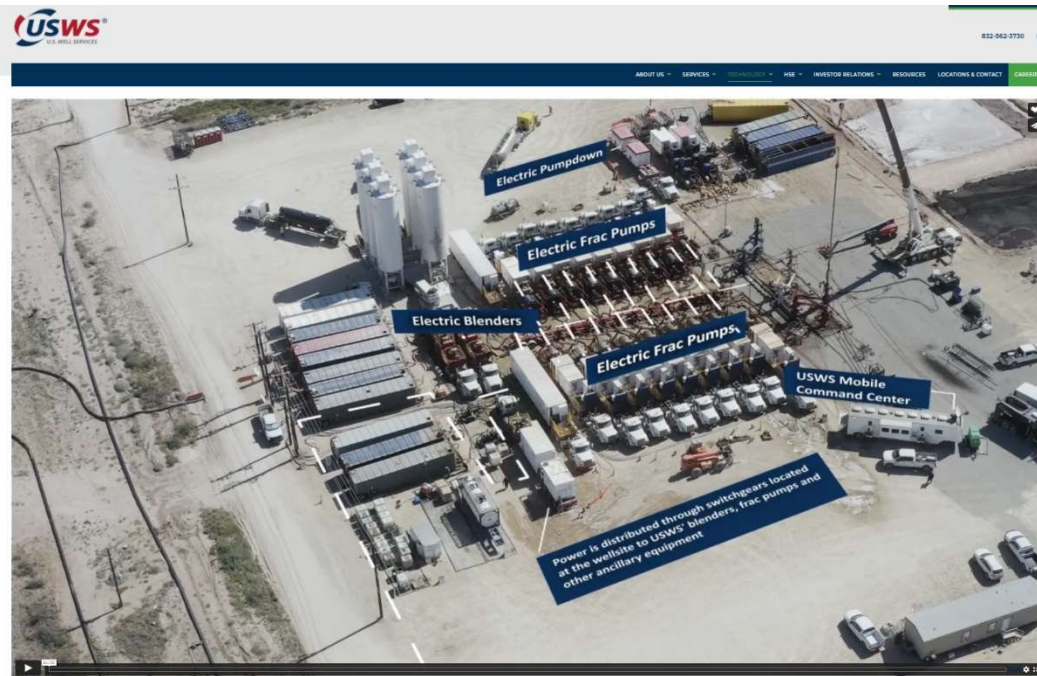
<sup>31</sup> <http://uswellservices.com/technology/>





105. On information and belief, Defendants' products and services, specifically including the Defendants' Fleet, include pumping the fracturing fluid into a down hole location using the at least one pump. For example, USWS's website provides a video of a fracturing operation using Defendants' Clean Fleet equipment including electric frac pumps that pump the fracturing fluid prepared by the nearby electric blenders down hole.<sup>32</sup>

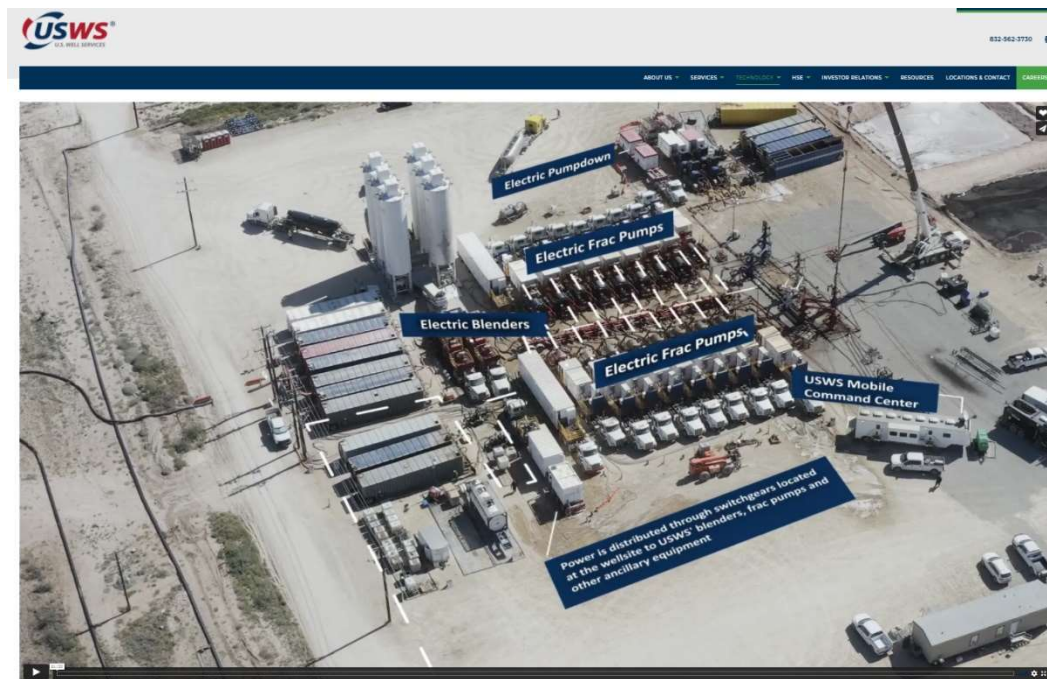
<sup>32</sup> <http://uswellservices.com/technology/>



106. On information and belief, Defendants’ products and services, specifically including the Defendants’ Fleet, include powering the pump with only one or both of: (a) one or more generators using only conditioned field gas, or (b) one or more engines using conditioned field gas and without using diesel. For example, USWS’s website provides a video of a fracturing operation using Defendants’ Clean Fleet equipment where electricity from the power generation setup including the 30MW turbine generator is transmitted to an active pad site, as shown in the first image below.<sup>33</sup> At the active pad site, “[p]ower is distributed through switchgears located at the wellsite to Defendants’ blenders, frac pumps, and other ancillary equipment,” as shown in the second image below. *Id.*

<sup>33</sup> <http://uswellservices.com/technology/>





107. Unless and until it is enjoined by this Court, Defendants will continue to infringe the '140 Patent, directly or indirectly, or under the doctrine of equivalents. Defendants' infringing acts are causing and will continue to cause Halliburton Plaintiffs irreparable harm, for which there

is no adequate remedy at law. Under 35 U.S.C. § 283, Halliburton Plaintiffs are entitled to a permanent injunction against further infringement.

**COUNT 6: INFRINGEMENT OF U.S. PATENT NO. RE49,155**

108. Halliburton Plaintiffs incorporate each of the above paragraphs by reference.

109. Defendants’ products and services that infringe the ’155 Patent include, but are not limited to, hydraulic fracturing equipment and services, which USWS refers to as USWS’s Clean Fleet and USWS’s Nyx Clean Fleet or ProFrac’s Electric Frac Fleet (“Defendants’ Fleet”). *See* U.S. Well Services, Inc., *U.S. Well Services Announces Next-Generation Nyx Clean Fleet Pump* (May 19, 2021);<sup>34</sup> *see also* <https://profrac.com/services/e-frac/>.

110. Defendants have committed acts of direct infringement of the ’155 Patent under 35 U.S.C. §271(a) at least by making, using, selling, offering to sell, and/or importing into the United States products and systems described herein.

111. Defendants have directly infringed—literally and/or under the doctrine of equivalents—at least Claim 27 of the ’155 Patent by making, using, selling, importing and/or offering for sale at least the Defendants’ Fleet and components thereof.

112. Claim 27 of the ’155 Patent recites:

47. A method of performing a fracturing operation, the method comprising:

having a fracturing fluid comprising a liquid and a solid component;

conditioning natural gas obtained from a field on which the fracturing operation is being performed to produce conditioned natural gas;

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<sup>34</sup> <https://ir.uswellservices.com/news-events/press-releases/detail/59/u-s-well-services-announces-next-generation-nyx-clean>

generating electricity using at least one on-site generator set powered by the conditioned natural gas;

using the electricity to power a plurality of pumps, wherein the plurality of pumps is powered without using diesel; and

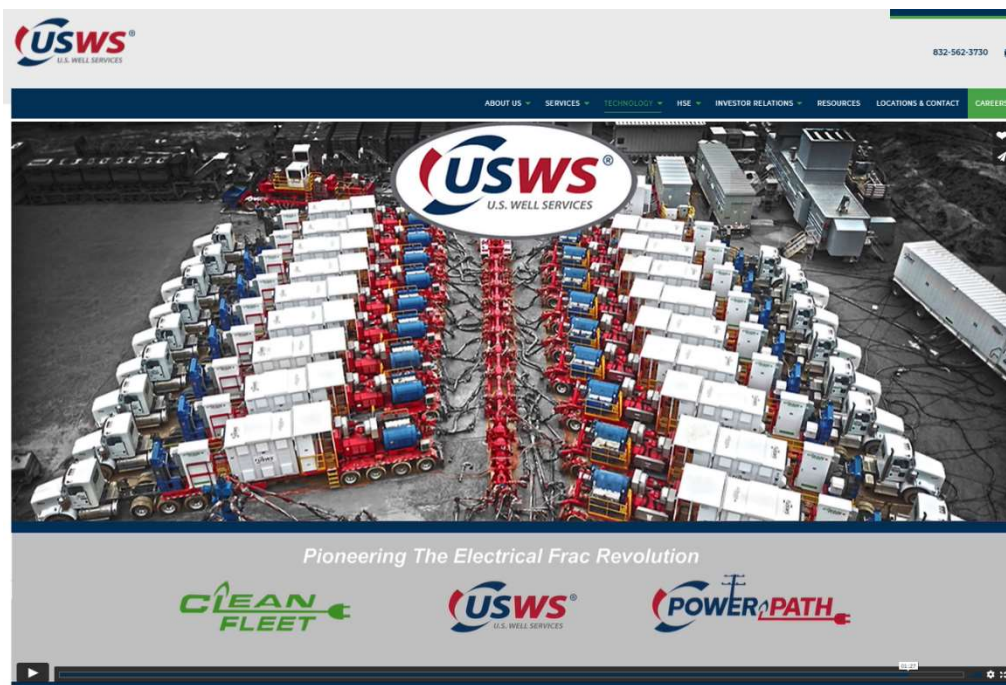
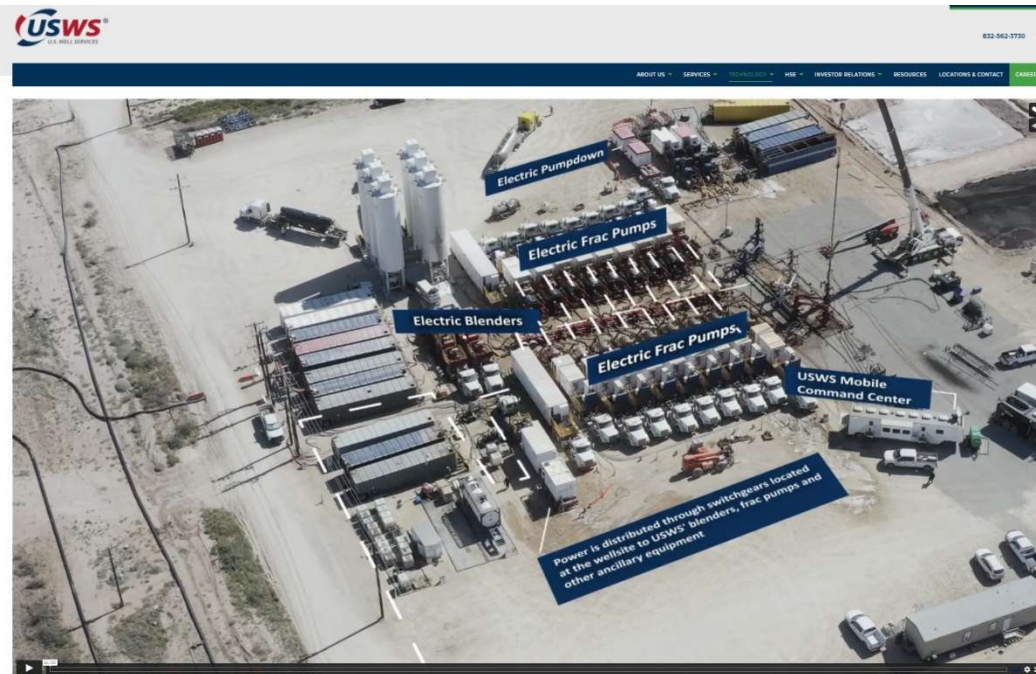
using the plurality of pumps to pump the fracturing fluid down hole to perform the fracturing operation.

113. On information and belief, Defendants' products and services, specifically including the Defendants' Fleet, include a method of performing a fracturing operation. For example, Defendants demonstrate a method of performing a fracturing operation on its website, as shown in the two images below. U.S. Well Services, *Technology & Innovation* (last visited August 31, 2022)<sup>35</sup>. On information and belief, Defendants' Clean Fleet and Defendants' Nyx Clean Fleet operates by driving two independently controlled electric motors and frac pumps to provide 6,000 hydraulic horsepower ('HHP') on a single trailer.

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<sup>35</sup> <http://uswellservices.com/technology/>

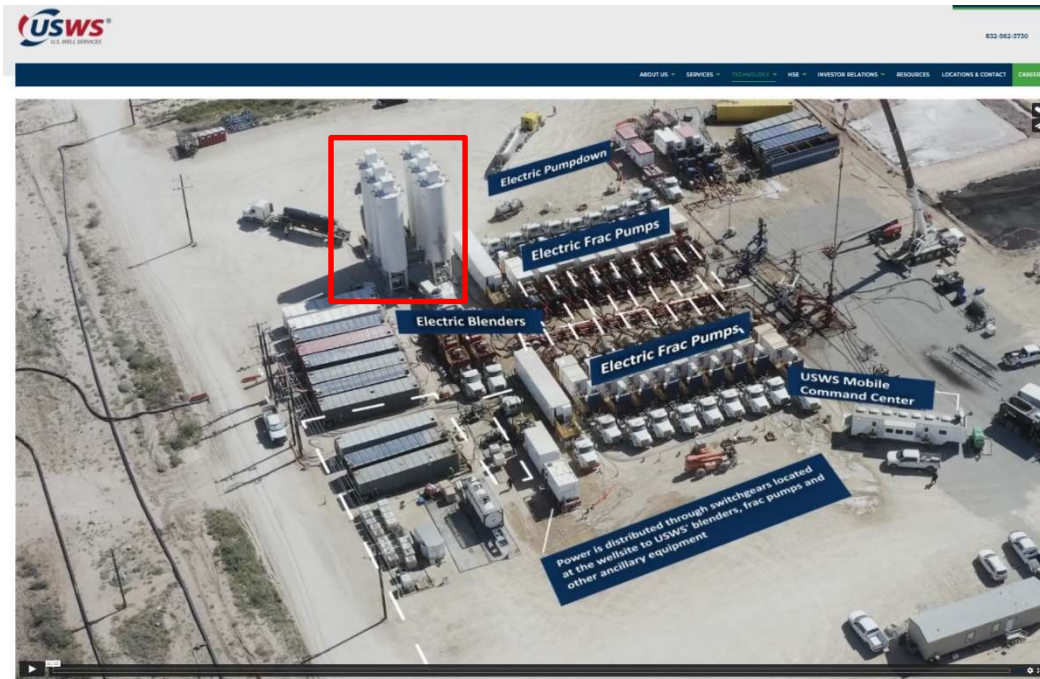




114. On information and belief, Defendants' products and services, specifically including the Defendants' Fleet, include using a blender to prepare a fracturing fluid comprising a liquid and a solid material. For example, Defendants' website provides a video of a fracturing

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operation using USWS Clean Fleet equipment including electric blenders that prepare a fracturing fluid including sand transferred from the sand equipment (i.e., sand silos and sand conveying system) and liquid provided by water/hydration tanks (annotated in red).<sup>36</sup>



115. On information and belief, Defendants' products and services, specifically including the Defendants' Fleet, generate electricity used in the fracturing operation using at least one on-site generator powered by one or more of conditioned field gas, compressed natural gas, or liquified natural gas. On information and belief, the conditioned natural gas is obtained from a field on which the fracturing operation is performed. For example, Defendants' website provides a video of a fracturing operation using Defendants' Clean Fleet equipment where electricity from a power generation setup including one or more 30MW turbine generators is transmitted to an active pad site (well pad with active completion), as shown in the first image below. U.S. Well

<sup>36</sup> <http://uswellservices.com/technology/>

Services, *Technology & Innovation* (last visited August 31, 2022).<sup>37</sup> On information and belief, Defendants' Clean Fleet and Defendants' Nyx Clean Fleet is designed to be powered by mobile generators and micro grid applications (such as the PowerPath technology). At the active pad site, "[p]ower is distributed through switchgears located at the wellsite to Defendants' blenders, frac pumps, and other ancillary equipment" in order to perform the fracturing operation, as shown in the second image below.<sup>38</sup> Moreover, USWS's website provides a video of a fracturing operation using Defendants' Clean Fleet equipment where the power generation setup including one or more 30MW turbine generators and a gas conditioning skid where the one or more turbine generators are powered using conditioned field gas supplied from the gas conditioning skid. U.S. Well Services, *Technology & Innovation* (last visited August 31, 2022).<sup>39</sup> On information and belief, Defendants' electric, mobile well stimulations systems are powered by locally-supplied natural gas, including field gas sourced directly from the wellhead. In addition, Defendants advertise their F3 Fuel technology, which "allows for the use of field gas, compressed natural gas ("CNG") or liquefied natural gas ("LNG") as a fuel source." See U.S. Well Services, *Technology & Innovation* (last visited August 31, 2022).<sup>40</sup>

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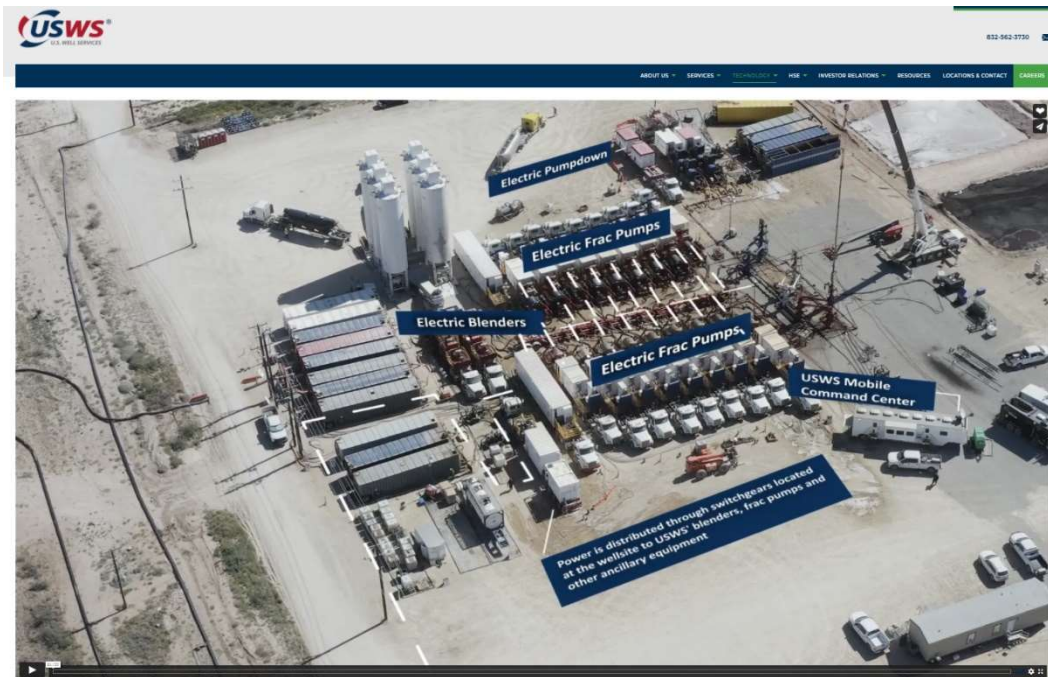
<sup>37</sup> <http://uswellservices.com/technology/>

<sup>38</sup> <http://uswellservices.com/technology/>

<sup>39</sup> <http://uswellservices.com/technology/>

<sup>40</sup> <http://uswellservices.com/technology/>



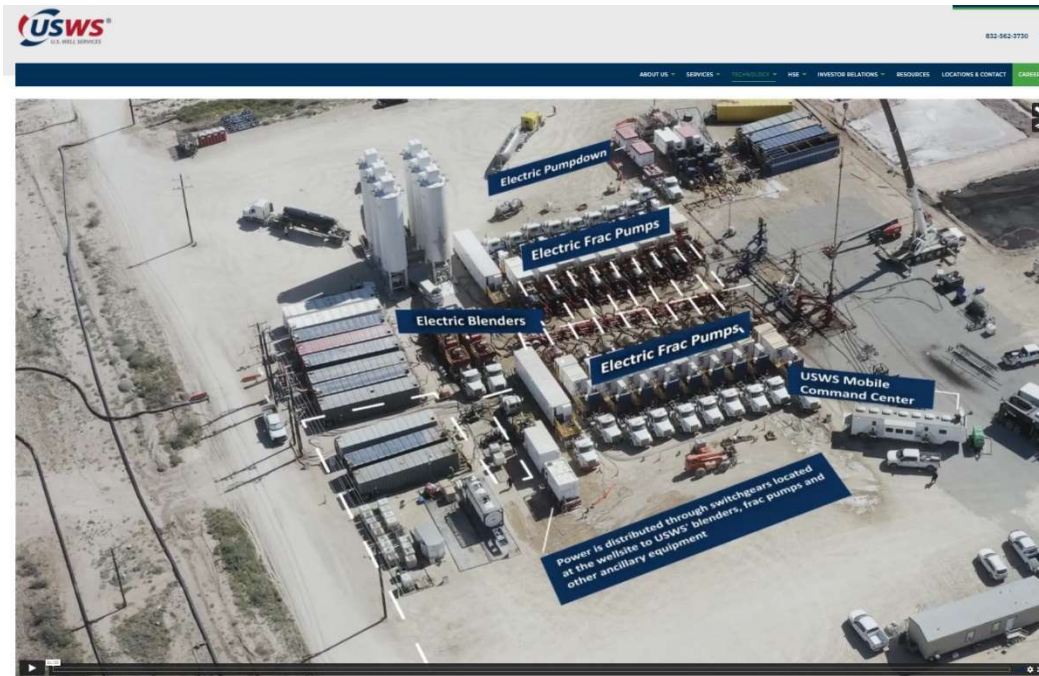


116. On information and belief, Defendants' products and services, specifically including the Defendants' Fleet, include powering the plurality of pumps with the electricity generated using the on-site generator without using diesel. These pumps are used to pump the fracturing fluid down hole to perform the fracturing operation. For example, Defendants' website

provides a video of a fracturing operation using USWS Clean Fleet equipment where electricity from the power generation setup including the 30MW turbine generator is transmitted to an active pad site, as shown in the first image below.<sup>41</sup> At the active pad site, “[p]ower is distributed through switchgears located at the wellsite to Defendants’ blenders, frac pumps, and other ancillary equipment,” as shown in the second image below. *Id.*



<sup>41</sup> <http://uswellservices.com/technology/>



117. Unless and until it is enjoined by this Court, Defendant will continue to infringe the '155 Patent, directly or indirectly, or under the doctrine of equivalents. Defendants' infringing acts are causing and will continue to cause Halliburton Plaintiffs irreparable harm, for which there is no adequate remedy at law. Under 35 U.S.C. § 283, Halliburton Plaintiffs are entitled to a permanent injunction against further infringement.

#### **COUNT 7: INFRINGEMENT OF U.S. PATENT NO. RE49,156**

118. Halliburton Plaintiffs incorporate each of the above paragraphs by reference.

119. Defendants' products and services that infringe the '156 Patent include, but are not limited to, hydraulic fracturing equipment and services, which USWS refers to as USWS's Clean Fleet and USWS's Nyx Clean Fleet or ProFrac's Electric Frac Fleet ("Defendants' Fleet"). *See*



U.S. Well Services, Inc., *U.S. Well Services Announces Next-Generation Nyx Clean Fleet Pump* (May 19, 2021);<sup>42</sup> *see also* <https://profrac.com/services/e-frac/>.

120. Defendant has committed acts of direct infringement of the '156 Patent under 35 U.S.C. §271(a) at least by making, using, selling, offering to sell, and/or importing into the United States products and systems described herein.

121. Defendant has directly infringed—literally and/or under the doctrine of equivalents—at least Claim 47 of the '156 Patent by making, using, selling, importing and/or offering for sale at least the Defendants' Fleet and components thereof.

122. Claim 47 of the '156 Patent recites:

47. A method of providing electric power used in a fracturing operation comprising:

generating electricity used in the fracturing operation using at least one on-site generator powered by one or more of conditioned field gas, compressed natural gas, or liquified natural gas; and

providing the electricity powering a plurality of pumps pumping a fracturing fluid down hole during the fracturing operation, wherein only the electricity powers the plurality of pumps during the fracturing operation.

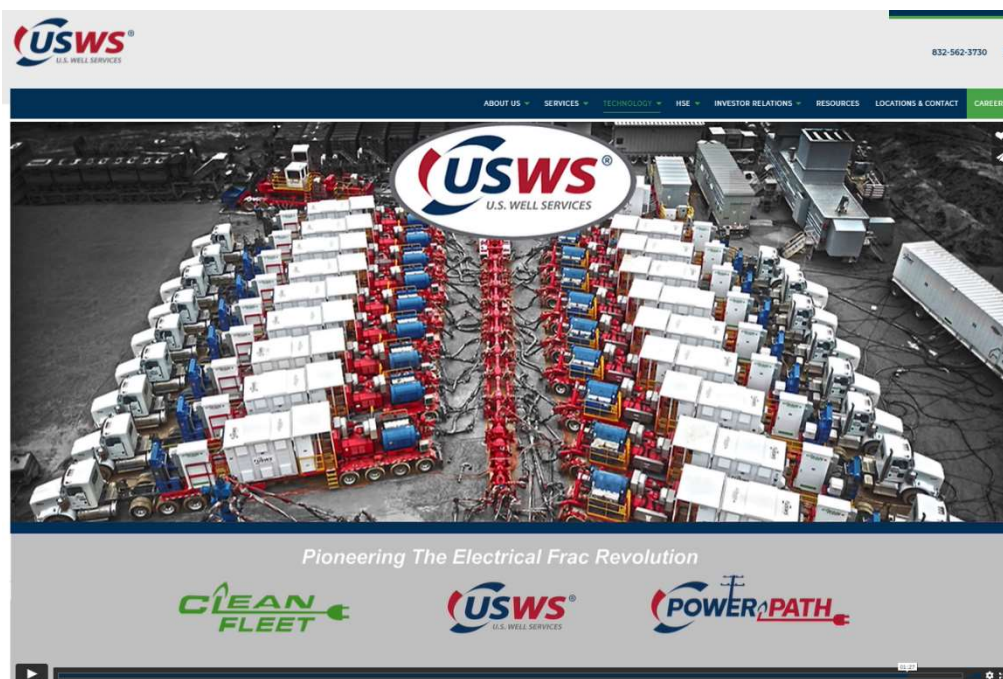
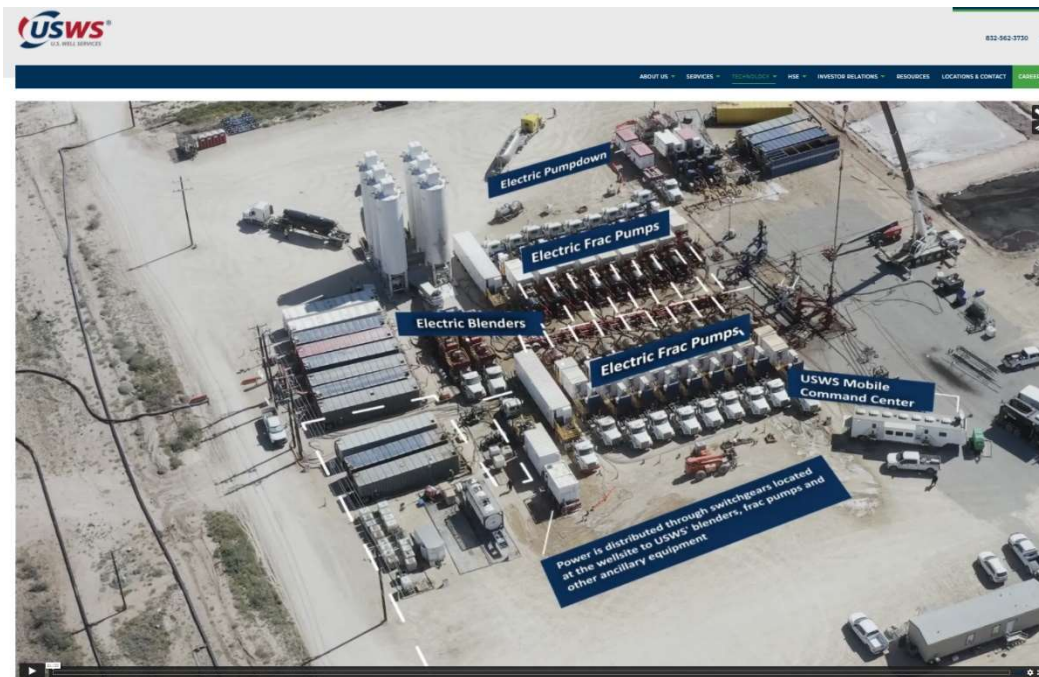
123. On information and belief, Defendants' products and services, specifically including the Defendants' Fleet, include a method of providing electric power used in a fracturing operation. For example, Defendants demonstrate providing electric power used in a fracturing operation, as shown in the two images below. U.S. Well Services, Technology & Innovation (last visited August 31, 2022)<sup>43</sup>. On information and belief, Defendants' Clean Fleet and Defendants'

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<sup>42</sup> <https://ir.uswellservices.com/news-events/press-releases/detail/59/u-s-well-services-announces-next-generation-nyx-clean>

<sup>43</sup> <http://uswellservices.com/technology/>

Nyx Clean Fleet operates by driving two independently controlled electric motors and frac pumps to provide 6,000 hydraulic horsepower ('HHP') on a single trailer.



124. On information and belief, Defendants’ products and services, specifically including the Defendants’ Fleet, generate electricity used in the fracturing operation using at least one on-site generator powered by one or more of conditioned field gas, compressed natural gas, or liquified natural gas. For example, USWS’s website provides a video of a fracturing operation using Defendants’ Clean Fleet equipment where electricity from a power generation setup including one or more 30MW turbine generators is transmitted to an active pad site (well pad with active completion), as shown in the first image below. U.S. Well Services, *Technology & Innovation* (last visited August 31, 2022).<sup>44</sup> On information and belief, Defendants’ Clean Fleet and Defendants’ Nyx Clean Fleet is designed to be powered by mobile generators and micro grid applications (such as the PowerPath technology). At the active pad site, “[p]ower is distributed through switchgears located at the wellsite to Defendants’ blenders, frac pumps, and other ancillary equipment” in order to perform the fracturing operation, as shown in the second image below.<sup>45</sup> Moreover, Defendants’ website provides a video of a fracturing operation using Defendants’ Clean Fleet equipment where the power generation setup including one or more 30MW turbine generators and a gas conditioning skid where the one or more turbine generators are powered using conditioned field gas supplied from the gas conditioning skid. U.S. Well Services, *Technology & Innovation* (last visited August 31, 2022).<sup>46</sup> On information and belief, Defendants’ electric, mobile well stimulations systems are powered by locally-supplied natural gas, including field gas sourced directly from the wellhead. In addition, Defendants advertise its F3 Fuel technology, which “allows for the use of field gas, compressed natural gas (“CNG”) or liquefied natural gas

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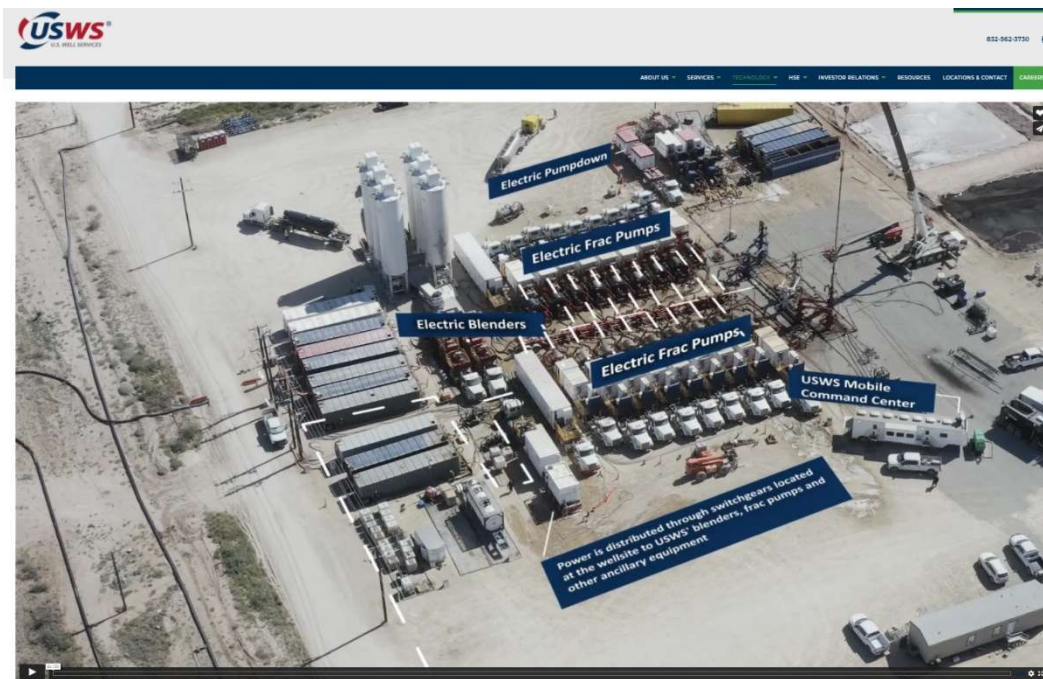
<sup>44</sup> <http://uswellservices.com/technology/>

<sup>45</sup> <http://uswellservices.com/technology/>

<sup>46</sup> <http://uswellservices.com/technology/>



(“LNG”) as a fuel source.” See U.S. Well Services, *Technology & Innovation* (last visited August 31, 2022).<sup>47</sup>

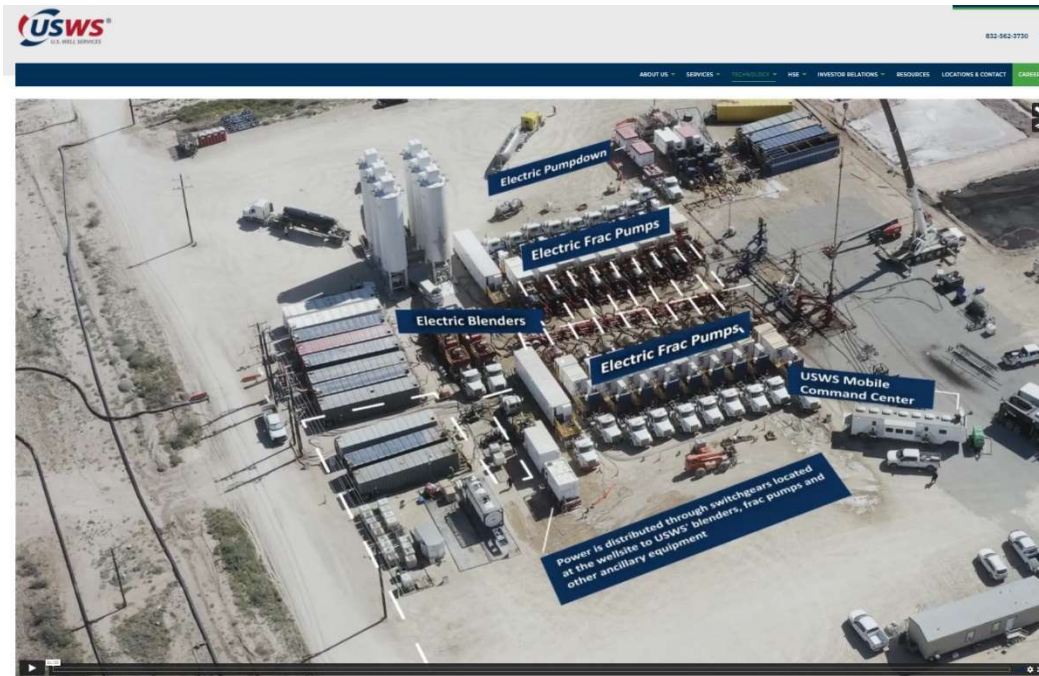


<sup>47</sup> <http://uswellservices.com/technology/>

125. On information and belief, Defendants’ products and services, specifically including the Defendants’ Fleet, include providing the electricity powering a plurality of pumps pumping a fracturing fluid down hole during the fracturing operation, wherein only the electricity powers the plurality of pumps during the fracturing operation. For example, Defendants’ website provides a video of a fracturing operation using Defendants’ Clean Fleet equipment where electricity from the power generation setup including the 30MW turbine generator is transmitted to an active pad site, as shown in the first image below.<sup>48</sup> At the active pad site, “[p]ower is distributed through switchgears located at the wellsite to Defendants’ blenders, frac pumps, and other ancillary equipment,” as shown in the second image below. *Id.*



<sup>48</sup> <http://uswellservices.com/technology/>



126. Unless and until it is enjoined by this Court, USWS will continue to infringe the '156 Patent, directly or indirectly, or under the doctrine of equivalents. Defendants' infringing acts are causing and will continue to cause Halliburton Plaintiffs irreparable harm, for which there is no adequate remedy at law. Under 35 U.S.C. § 283, Halliburton Plaintiffs are entitled to a permanent injunction against further infringement.

#### **COUNT 8: INFRINGEMENT OF U.S. PATENT NO. 7,931,082**

127. Halliburton Plaintiffs incorporate each of the above paragraphs by reference.

128. Defendants' products and services that infringe the '082 Patent include, but are not limited to, hydraulic fracturing equipment and services, which USWS refers to as USWS's Clean Fleet and USWS's Nyx Clean Fleet on its website as well as Defendants' conventional fleet(s)



(“Defendants’ Fleet”). See U.S. Well Services, Inc., *U.S. Well Services Announces Next-Generation Nyx Clean Fleet Pump* (May 19, 2021).<sup>49</sup>

129. Defendants have committed acts of direct infringement of the ’082 Patent under 35 U.S.C. §271(a) at least by making, using, selling, offering to sell, and/or importing into the United States products and systems described herein.

130. Defendants have directly infringed—literally and/or under the doctrine of equivalents—at least Claim 1 of the ’082 Patent by making, using, selling, importing and/or offering for sale at least the Defendants’ Fleet and components thereof.

131. Claim 1 of the ’082 Patent recites:

1. A method of providing centralized well development services to a plurality of wells, comprising the steps of:

flowing from a centralized well treatment fluid center to one or more centralized service factories one or more well development task fluids, wherein the one or more centralized service factories are selectively configurable to receive the one or more well development task fluids;

preparing, at the one or more centralized service factories, one or more well treatment fluids from the one or more well development task fluids, wherein the one or more centralized service factories are selectively configurable to prepare the one or more well treatment fluids;

flowing from the one or more centralized service factories to at least one of the plurality of wells the one or more well treatment fluids, wherein the one or more centralized service factories are selectively configurable to flow the one or more well treatment fluids;

recovering from the at least one of the plurality of wells the one or more well treatment fluids at the one or more centralized service factories, wherein the one or more centralized service factories are

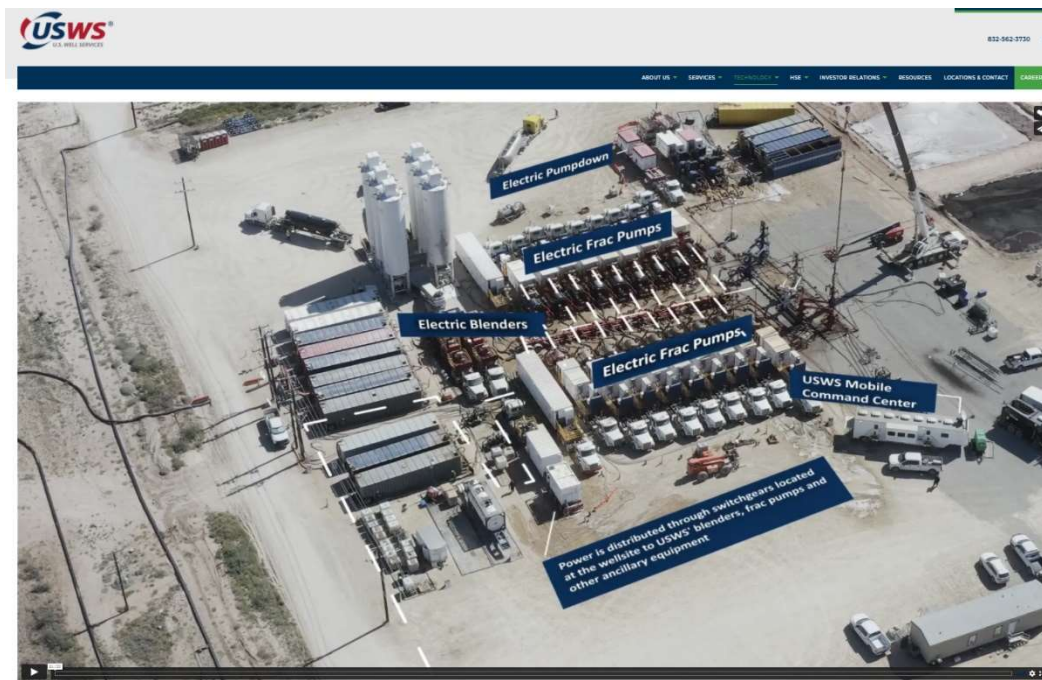
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<sup>49</sup> <https://ir.uswellservices.com/news-events/press-releases/detail/59/u-s-well-services-announces-next-generation-nyx-clean>

selectively configurable to receive the one or more recovered well treatment fluids; and

flowing from the one or more centralized service factories to the centralized well treatment fluid center the one or more recovered well treatment fluids, wherein the one or more centralized service factories are selectively configurable to flow the one or more recovered well treatment fluids, and wherein the centralized well treatment fluid center is selectively configurable to receive the one or more recovered well treatment fluids.

132. Defendants' products and services, specifically including the Defendants' Fleet, include a method of providing centralized well development services to a plurality of wells. For example, Defendants demonstrate providing well development services provided in a fracturing operation, as shown in the two images below. U.S. Well Services, Technology & Innovation (last visited August 31, 2022).<sup>50</sup>



<sup>50</sup> <http://uswellservices.com/technology/>



133. Defendants' products and services, specifically including the Defendants' Fleet, include a centralized well treatment fluid center (e.g., blenders, liquid additive storage devices, hydration units, etc.) that is used to flow a well development task fluid to the centralized service factories, wherein the factory is selectively configurable to receive the fluids.



134. Defendants' products and services, specifically including the Defendants' Fleet, include preparing at the centralized factory, well treatment fluids using the well development task fluids. The centralized factory in Defendants' products and services is configurable to prepare the well treatment fluids.

135. Defendants' products and services, specifically including the Defendants' Fleet, include flowing the well treatment fluids from the centralized service factory to at least one of the plurality of wells on the well pad. The centralized factory in Defendants' products and services are configurable to flow the one or more well treatment fluids.



136. Defendants' products and services, specifically including the Defendants' Fleet, include recovering the well treatment fluid (e.g., in the form of produced water) from the well. The centralized factory in Defendants' products and services are configurable to receive the recovered well treatment fluids.

137. Defendants' products and services, specifically including the Defendants' Fleet, include flowing the recovered well treatment fluids from the centralized service factory to the well treatment fluid center. The centralized service factory in Defendants' products and services is selectively configurable to flow the recovered well treatment fluid, and the centralized well treatment fluid center is configurable to receive the recovered well treatment fluid.

138. Defendants' continued infringement after obtaining knowledge of the '082 Patent amounts to willful infringement. USWS has had knowledge of the '082 Patent since at least September 10, 2021 when it identified the '082 Patent in its preliminary invalidity contentions in the 367 Case.

139. Unless and until it is enjoined by this Court, Defendants will continue to infringe the '082 Patent, directly or indirectly, or under the doctrine of equivalents. Defendants' infringing acts are causing and will continue to cause Halliburton Plaintiffs irreparable harm, for which there is no adequate remedy at law. Under 35 U.S.C. § 283, Halliburton Plaintiffs are entitled to a permanent injunction against further infringement.

**JURY DEMAND**

Halliburton Plaintiffs respectfully request a trial by jury of all issues so triable.

**PRAYER FOR RELIEF**

Halliburton Plaintiffs respectfully request that the Court enter judgment in their favor and grant the following relief:

A. Enter judgment that Defendants have infringed and are infringing the Asserted Halliburton Patents literally and/or under the doctrine of equivalents.

B. Enter an order enjoining Defendants, their agents, officers, employees, and all persons in active or concert or participation with Defendants, who receive notice of the Order from further infringement of the Asserted Halliburton Patents.

C. Award Halliburton Plaintiffs damages in an amount sufficient to compensate for Defendants' infringement of the Asserted Halliburton Patents, including enhanced damages, together with pre-judgment and post-judgment interest and costs in accordance with 35 U.S.C. §284.

D. Award Halliburton Plaintiffs an accounting for acts of infringement not presented at trial and an award by the Court of additional damages for any such acts of infringement.

E. Award Halliburton Plaintiffs their attorney's fees and costs pursuant to 35 U.S.C. § 285.

F. Award Halliburton Plaintiffs such other further relief as the Court deems just and proper.

Dated: December 9, 2022

Respectfully submitted,

By: /s/ David M. Genender

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HALLIBURTON'S SECOND AMENDED COMPLAINT FOR PATENT INFRINGEMENT

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**ATTORNEYS FOR  
HALLIBURTON PLAINTIFFS**

**CERTIFICATE OF SERVICE**

I hereby certify that on December 9, 2022, the foregoing was filed electronically and served on all counsel of record.

/s/ David M. Genender  
David M. Genender